IO.Devices.A4988 Namespace

A4988 Stepper Motor Controller Services.

Classes

	Class	Description
	Device	Encapsulates the A4988 Stepper Motor Controller.

Device Class

Encapsulates the A4988 Stepper Motor Controller.

Inheritance Hierarchy

SystemObject IO.Devices.A4988Device

Namespace: IO.Devices.A4988
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class Device : Output
```

The Device type exposes the following members.

Constructors

	Name	Description
	Device	Constructor for a single A4988 device.

Top

Properties

	Name	Description
	StepsPerRotation	Read-only property returning the number of steps a stepper

motor has.

Top

Methods

	Name	Description
	Disable	Disable the A4988 device.
	Enable	Enable the A4988 device.
	Move	Move the stepper motor a specified number of steps at a specified rate.
	Reset	Reset the A4988 device.
	Sleep	Put the A4988 device to sleep.
	Spin	Spin (i.e. continuous rotation) the stepper moter at a specified rate.
	Wakeup	Wake up the A4988 device.

Top

See Also

Reference

IO.Devices.A4988 Namespace

Device Constructor

Constructor for a single A4988 device.

Namespace: IO.Devices.A4988
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Device(
        int StepsPerRotation,
        Pin Step,
        Pin Dir,
        Pin Enable = null,
        Pin Reset = null,
        Pin Sleep = null
)
```

Parameters

StepsPerRotation
Type: SystemInt32
The number of steps per rotation. This is a physical characteristic of the particular stepper motor being driven.

Step
Type: IO.Interfaces.GPIOPin
GPIO pin object for the `STEP` signal.

Dir
Type: IO.Interfaces.GPIOPin
GPIO pin object for the `DIR` signal.

Enable **(Optional)**

Type: IO.Interfaces.GPIOPin
GPIO pin object for the `-ENABLE` signal.

Reset **(Optional)**
Type: IO.Interfaces.GPIOPin
GPIO pin object for the `-RESET` signal.

Sleep **(Optional)**
Type: IO.Interfaces.GPIOPin
GPIO pin object for the `-SLEEP` signal.

See Also

Reference

Device Class
IO.Devices.A4988 Namespace

Device Properties

The Device type exposes the following members.

Properties

	Name	Description
	StepsPerRotation	Read-only property returning the number of steps a stepper motor has.

Top

See Also

Reference

Device Class

IO.Devices.A4988 Namespace

DeviceStepsPerRotation Property

Read-only property returning the number of steps a stepper motor has.

Namespace: IO.Devices.A4988
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public int StepsPerRotation { get; }
```

Property Value

Type: Int32

Implements

OutputStepsPerRotation

See Also

Reference

Device Class
IO.Devices.A4988 Namespace

Device Methods

The Device type exposes the following members.

Methods

	Name	Description
	Disable	Disable the A4988 device.
	Enable	Enable the A4988 device.
	Move	Move the stepper motor a specified number of steps at a specified rate.
	Reset	Reset the A4988 device.
	Sleep	Put the A4988 device to sleep.
	Spin	Spin (i.e. continuous rotation) the stepper moter at a specified rate.
	Wakeup	Wake up the A4988 device.

Top

See Also

Reference

Device Class

IO.Devices.A4988 Namespace

DeviceDisable Method

Disable the A4988 device.

Namespace: IO.Devices.A4988
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public void Disable()
```

See Also

Reference

Device Class
IO.Devices.A4988 Namespace

DeviceEnable Method

Enable the A4988 device.

Namespace: IO.Devices.A4988
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public void Enable()
```

See Also

Reference

Device Class
IO.Devices.A4988 Namespace

DeviceMove Method

Move the stepper motor a specified number of steps at a specified rate.

Namespace: IO.Devices.A4988
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public void Move(
        int steps,
        float rate
)
```

Parameters

steps
Type: SystemInt32
Number of steps to move. Negative values indicate reverse motion and positive values indicate forward motion. (The directions are nominal and depend on how the stepper motor coils are wired). Zero indicates the stepper motor should be stopped.

rate
Type: SystemSingle
The rate of motion, in steps per second. Negative values indicate reverse motion and positive values indicate forward motion. (The directions are nominal and depend on how the stepper motor coils are wired). Zero indicates the stepper motor should be stopped.

Implements
OutputMove(Int32, Single)

Remarks

This implementation supports a maximum rate of 500 steps per second.

See Also

Reference
Device Class
IO.Devices.A4988 Namespace

DeviceReset Method

Reset the A4988 device.

Namespace: IO.Devices.A4988
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public void Reset()
```

See Also

Reference

Device Class
IO.Devices.A4988 Namespace

DeviceSleep Method

Put the A4988 device to sleep.

Namespace: IO.Devices.A4988
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public void Sleep()
```

See Also

Reference

Device Class
IO.Devices.A4988 Namespace

DeviceSpin Method

Spin (i.e. continuous rotation) the stepper moter at a specified rate.

Namespace: IO.Devices.A4988
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public void Spin(
        float rate
)
```

Parameters

rate

Type: SystemSingle
The rate of motion, in steps per second. Negative values indicate reverse motion and positive values indicate forward motion. (The directions are nominal and depend on how the stepper motor coils are wired). Zero indicates the stepper motor should be stopped.

Implements

OutputSpin(Single)

Remarks

The A4988 stepper motor driver does not support continuous rotation and this method will always throw an exception.

See Also

Reference

Device Class

IO.Devices.A4988 Namespace

DeviceWakeup Method

Wake up the A4988 device.

Namespace: IO.Devices.A4988
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public void Wakeup()
```

See Also

Reference

Device Class
IO.Devices.A4988 Namespace

IO.Devices.AD5593R Namespace

AD5593 Analog/Digital I/O Device Services.

Classes

	Class	Description
	Device	Enscapsulates the AD5593R I^2C Analog/Digital I/O device.

Enumerations

	Enumeration	Description
	PinMode	AD5593R I/O Pin Modes.
	ReferenceMode	ADC5593R ADC and DAC reference settings.

Device Class

Enscapsulates the AD5593R I^{2}C Analog/Digital I/O device.

Inheritance Hierarchy

SystemObject IO.Devices.AD5593RDevice

Namespace: IO.Devices.AD5593R
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class Device
```

The Device type exposes the following members.

Constructors

	Name	Description
	Device	Constructor for a single AD5593R device.

Top

Properties

	Name	Description
	ADC_Reference	Write-only property for setting the AD5593R ADC reference

		mode.
	DAC_Reference	Write-only property for setting the AD5593R DAC reference mode.
	GPIO_Inputs	GPIO input register state. Any I/O pin that is not configured as a GPIO input will read as zero.
	GPIO_Outputs	GPIO output register state. Any I/O pin that is not configured as a GPIO output will be written as zero.

Top

Methods

	Name	Description
	ADC_Create	Create an AD5593R ADC input object.
	ConfigureChannel	Configure a single ADC5593R I/O pin.
	DAC_Create	Create an AD5593R DAC output object.
	GPIO_Create	Create an AD5593R GPIO pin object.
	Read_ADC	Read from an ADC channel.
	Write_DAC	Write to a DAC channel.

Top

Fields

	Name	Description
S	ADC_Resolution	ADC resolution in bits.
S	DAC_Resolution	DAC resolution in bits.
S	MaxChannel	Maximum I/O channel number.
S	MinChannel	Minimum I/O channel number.

Top

See Also

Reference

IO.Devices.AD5593R Namespace

Device Constructor

Constructor for a single AD5593R device.

Namespace: IO.Devices.AD5593R
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Device(
        Bus bus,
        int addr
)
```

Parameters

bus
Type: IO.Interfaces.I2CBus
I^2C bus controller object.

addr
Type: SystemInt32
I^2C slave address.

See Also

Reference

Device Class
IO.Devices.AD5593R Namespace

Device Properties

The Device type exposes the following members.

Properties

	Name	Description
	ADC_Reference	Write-only property for setting the AD5593R ADC reference mode.
	DAC_Reference	Write-only property for setting the AD5593R DAC reference mode.
	GPIO_Inputs	GPIO input register state. Any I/O pin that is not configured as a GPIO input will read as zero.
	GPIO_Outputs	GPIO output register state. Any I/O pin that is not configured as a GPIO output will be written as zero.

Top

See Also

Reference

Device Class

IO.Devices.AD5593R Namespace

DeviceADC_Reference Property

Write-only property for setting the AD5593R ADC reference mode.

Namespace: IO.Devices.AD5593R
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public ReferenceMode ADC_Reference { set; }
```

Property Value

Type: ReferenceMode

See Also

Reference

Device Class
IO.Devices.AD5593R Namespace

DeviceDAC_Reference Property

Write-only property for setting the AD5593R DAC reference mode.

Namespace: IO.Devices.AD5593R
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public ReferenceMode DAC_Reference { set; }
```

Property Value

Type: ReferenceMode

See Also

Reference

Device Class
IO.Devices.AD5593R Namespace

DeviceGPIO_Inputs Property

GPIO input register state. Any I/O pin that is not configured as a GPIO input will read as zero.

Namespace: IO.Devices.AD5593R
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public byte GPIO_Inputs { get; }
```

Property Value

Type: Byte

See Also

Reference

Device Class
IO.Devices.AD5593R Namespace

DeviceGPIO_Outputs Property

GPIO output register state. Any I/O pin that is not configured as a GPIO output will be written as zero.

Namespace: IO.Devices.AD5593R
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public byte GPIO_Outputs { get; set; }
```

Property Value

Type: Byte

See Also

Reference

Device Class
IO.Devices.AD5593R Namespace

Device Methods

The Device type exposes the following members.

Methods

	Name	Description
	ADC_Create	Create an AD5593R ADC input object.
	ConfigureChannel	Configure a single ADC5593R I/O pin.
	DAC_Create	Create an AD5593R DAC output object.
	GPIO_Create	Create an AD5593R GPIO pin object.
	Read_ADC	Read from an ADC channel.
	Write_DAC	Write to a DAC channel.

Top

See Also

Reference

Device Class

IO.Devices.AD5593R Namespace

DeviceADC_Create Method

Create an AD5593R ADC input object.

Namespace: IO.Devices.AD5593R
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Sample ADC_Create(
        int channel
)
```

Parameters

channel
Type: SystemInt32
AD5593R ADC channel number (0 to 7).

Return Value

Type: Sample
ADC input object.

See Also

Reference

Device Class
IO.Devices.AD5593R Namespace

DeviceConfigureChannel Method

Configure a single ADC5593R I/O pin.

Namespace: IO.Devices.AD5593R
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# **VB** **F#** Copy

```
public void ConfigureChannel(
        int channel,
        PinMode mode
)
```

Parameters

channel
Type: SystemInt32
ADC5593R I/O channel number (0 to 7).

mode
Type: IO.Devices.AD5593RPinMode
ADC5593R I/O pin mode.

See Also

Reference

Device Class
IO.Devices.AD5593R Namespace

DeviceDAC_Create Method

Create an AD5593R DAC output object.

Namespace: IO.Devices.AD5593R
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Sample DAC_Create(
        int channel,
        int sample = 0
)
```

Parameters

channel
Type: SystemInt32
AD5593R DAC channel number (0 to 7).

sample **(Optional)**
Type: SystemInt32
Initial DAC output sample.

Return Value

Type: Sample
DAC output object.

See Also

Reference

Device Class

IO.Devices.AD5593R Namespace

DeviceGPIO_Create Method

Create an AD5593R GPIO pin object.

Namespace: IO.Devices.AD5593R
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Pin GPIO_Create(
        int channel,
        Direction dir,
        bool state = false
)
```

Parameters

channel
Type: SystemInt32
AD5593R GPIO channel number (0 to 7).

dir
Type: IO.Interfaces.GPIODirection
GPIO pin data direction.

state **(Optional)**
Type: SystemBoolean
Initial GPIO output state.

Return Value

Type: Pin
GPIO pin object.

See Also

Reference

Device Class

IO.Devices.AD5593R Namespace

DeviceRead_ADC Method

Read from an ADC channel.

Namespace: IO.Devices.AD5593R
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public int Read_ADC(
        int channel
)
```

Parameters

channel
Type: SystemInt32
ADC channel number (0 to 7).

Return Value

Type: Int32
ADC input sample data (0 to 4095).

See Also

Reference

Device Class
IO.Devices.AD5593R Namespace

DeviceWrite_DAC Method

Write to a DAC channel.

Namespace: IO.Devices.AD5593R
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public void Write_DAC(
        int channel,
        int data
)
```

Parameters

channel
Type: SystemInt32
DAC channel number (0 to 7).

data
Type: SystemInt32
DAC output sample data (0 to 4095).

See Also

Reference

Device Class
IO.Devices.AD5593R Namespace

Device Fields

The Device type exposes the following members.

Fields

	Name	Description
S	ADC_Resolution	ADC resolution in bits.
S	DAC_Resolution	DAC resolution in bits.
S	MaxChannel	Maximum I/O channel number.
S	MinChannel	Minimum I/O channel number.

Top

See Also

Reference

Device Class

IO.Devices.AD5593R Namespace

DeviceADC_Resolution Field

ADC resolution in bits.

Namespace: IO.Devices.AD5593R
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const int ADC_Resolution = 12
```

Field Value

Type: Int32

See Also

Reference

Device Class
IO.Devices.AD5593R Namespace

DeviceDAC_Resolution Field

DAC resolution in bits.

Namespace: IO.Devices.AD5593R
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const int DAC_Resolution = 12
```

Field Value

Type: Int32

See Also

Reference

Device Class
IO.Devices.AD5593R Namespace

DeviceMaxChannel Field

Maximum I/O channel number.

Namespace: IO.Devices.AD5593R
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const int MaxChannel = 7
```

Field Value

Type: Int32

See Also

Reference

Device Class
IO.Devices.AD5593R Namespace

DeviceMinChannel Field

Minimum I/O channel number.

Namespace: IO.Devices.AD5593R
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const int MinChannel = 0
```

Field Value

Type: Int32

See Also

Reference

Device Class
IO.Devices.AD5593R Namespace

PinMode Enumeration

AD5593R I/O Pin Modes.

Namespace: IO.Devices.AD5593R
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public enum PinMode
```

Members

Member name	Value	Description
ADC_Input	0	Analog input.
DAC_Output	1	Analog output.
GPIO_Input	2	GPIO input.
GPIO_Output	3	GPIO output.
GPIO_Output_OpenDrain	4	GPIO open drain output.

See Also

Reference

IO.Devices.AD5593R Namespace

ReferenceMode Enumeration

ADC5593R ADC and DAC reference settings.

Namespace: IO.Devices.AD5593R
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public enum ReferenceMode
```

Members

Member name	Value	Description
Internalx1	0	The reference voltage is 2.5V using the internal reference.
Internalx2	1	The reference voltage is 5.0V using the internal reference.
Externalx1	2	The reference voltage is 1.0*Vref, using an external reference.
Externalx2	3	The reference voltage is 2.0*Vref, using an external reference.

See Also

Reference

IO.Devices.AD5593R Namespace

IO.Devices.AD5593R.ADC Namespace

AD5593 Analog/Digital I/O Device ADC Input Services.

Classes

	Class	Description
	Sample	Encapsulates AD5593R ADC inputs.

Sample Class

Encapsulates AD5593R ADC inputs.

Inheritance Hierarchy

SystemObject IO.Devices.AD5593R.ADCSample

Namespace: IO.Devices.AD5593R.ADC
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class Sample : Sample
```

The Sample type exposes the following members.

Constructors

	Name	Description
	Sample	Create an AD5593R ADC input.

Top

Properties

	Name	Description
	resolution	Read-only property returning the number of bits of resolution.

	sample	Read-only property returning an integer analog sample value.

Top

See Also

Reference

IO.Devices.AD5593R.ADC Namespace

Sample Constructor

Create an AD5593R ADC input.

Namespace: IO.Devices.AD5593R.ADC
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# **VB** **F#** Copy

```
public Sample(
        Device dev,
        int channel
)
```

Parameters

dev
Type: IO.Devices.AD5593RDevice
AD5593R device object.

channel
Type: SystemInt32
AD5593R I/O channel number (0 to 7).

See Also

Reference

Sample Class
IO.Devices.AD5593R.ADC Namespace

Sample Properties

The Sample type exposes the following members.

Properties

	Name	Description
	resolution	Read-only property returning the number of bits of resolution.
	sample	Read-only property returning an integer analog sample value.

Top

See Also

Reference

Sample Class

IO.Devices.AD5593R.ADC Namespace

Sampleresolution Property

Read-only property returning the number of bits of resolution.

Namespace: IO.Devices.AD5593R.ADC
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public int resolution { get; }
```

Property Value

Type: Int32

Implements

Sampleresolution

See Also

Reference

Sample Class
IO.Devices.AD5593R.ADC Namespace

Samplesample Property

Read-only property returning an integer analog sample value.

Namespace: IO.Devices.AD5593R.ADC
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public int sample { get; }
```

Property Value

Type: Int32

Implements

Samplesample

See Also

Reference

Sample Class
IO.Devices.AD5593R.ADC Namespace

IO.Devices.AD5593R.DAC Namespace

AD5593 Analog/Digital I/O Device DAC Output Services.

Classes

	Class	Description
	Sample	Encapsulates AD5593R DAC outputs.

Sample Class

Encapsulates AD5593R DAC outputs.

Inheritance Hierarchy

SystemObject IO.Devices.AD5593R.DACSample

Namespace: IO.Devices.AD5593R.DAC
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class Sample : Sample
```

The Sample type exposes the following members.

Constructors

	Name	Description
	Sample	Create an AD5593R DAC output.

Top

Properties

	Name	Description
	resolution	Read-only property returning the number of bits of resolution.

	sample	Write-only property for writing an integer analog sample to a DAC output.

Top

See Also

Reference

IO.Devices.AD5593R.DAC Namespace

Sample Constructor

Create an AD5593R DAC output.

Namespace: IO.Devices.AD5593R.DAC
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# **VB** **F#** Copy

```
public Sample(
        Device dev,
        int channel,
        int sample = 0
)
```

Parameters

dev
Type: IO.Devices.AD5593RDevice
AD5593R device object.

channel
Type: SystemInt32
AD5593R I/O channel number (0 to 7).

sample **(Optional)**
Type: SystemInt32
Initial DAC output sample.

See Also

Reference

Sample Class

IO.Devices.AD5593R.DAC Namespace

Sample Properties

The Sample type exposes the following members.

Properties

	Name	Description
	resolution	Read-only property returning the number of bits of resolution.
	sample	Write-only property for writing an integer analog sample to a DAC output.

Top

See Also

Reference

Sample Class

IO.Devices.AD5593R.DAC Namespace

Sampleresolution Property

Read-only property returning the number of bits of resolution.

Namespace: IO.Devices.AD5593R.DAC
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public int resolution { get; }
```

Property Value

Type: Int32

Implements

Sampleresolution

See Also

Reference

Sample Class
IO.Devices.AD5593R.DAC Namespace

Samplesample Property

Write-only property for writing an integer analog sample to a DAC output.

Namespace: IO.Devices.AD5593R.DAC
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public int sample { set; }
```

Property Value

Type: Int32

Implements

Samplesample

See Also

Reference

Sample Class
IO.Devices.AD5593R.DAC Namespace

IO.Devices.AD5593R.GPIO Namespace

AD5593 Analog/Digital I/O Device GPIO Pin Services.

Classes

	Class	Description
	Pin	Encapsulates AD5593R GPIO pins.

Pin Class

Encapsulates AD5593R GPIO pins.

Inheritance Hierarchy

SystemObject IO.Devices.AD5593R.GPIOPin

Namespace: IO.Devices.AD5593R.GPIO
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class Pin : Pin
```

The Pin type exposes the following members.

Constructors

	Name	Description
	Pin	Create an AD5593R GPIO pin.

Top

Properties

	Name	Description
	state	Read/Write GPIO state property.

Top

See Also

Reference

IO.Devices.AD5593R.GPIO Namespace

Pin Constructor

Create an AD5593R GPIO pin.

Namespace: IO.Devices.AD5593R.GPIO
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Pin(
        Device dev,
        int channel,
        Direction dir,
        bool state = false
)
```

Parameters

dev
Type: IO.Devices.AD5593RDevice
AD5593R device object.

channel
Type: SystemInt32
AD5593R I/O channel number (0 to 7).

dir
Type: IO.Interfaces.GPIODirection
GPIO pin data direction.

state **(Optional)**
Type: SystemBoolean
Initial GPIO output state.

See Also

Reference

Pin Class

IO.Devices.AD5593R.GPIO Namespace

Pin Properties

The Pin type exposes the following members.

Properties

	Name	Description
	state	Read/Write GPIO state property.

Top

See Also

Reference

Pin Class

IO.Devices.AD5593R.GPIO Namespace

Pinstate Property

Read/Write GPIO state property.

Namespace: IO.Devices.AD5593R.GPIO
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public bool state { get; set; }
```

Property Value

Type: Boolean

Implements

Pinstate

See Also

Reference

Pin Class
IO.Devices.AD5593R.GPIO Namespace

IO.Devices.ADC121C021 Namespace

ADC121C021 I^{2}C A/D Converter Services

Classes

	Class	Description
	Sample	Encapsulates the ADC121C021 I^{2}C A/D converter.

Sample Class

Encapsulates the ADC121C021 I^{2}C A/D converter.

Inheritance Hierarchy

SystemObject IO.Devices.ADC121C021Sample

Namespace: IO.Devices.ADC121C021
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class Sample : Sample
```

The Sample type exposes the following members.

Constructors

	Name	Description
	Sample	Constructor for an ADC121C021 analog input.

Top

Properties

	Name	Description
	resolution	Return the number of bits of A/D

		resolution.
	sample	Returns a single 12-bit analog sample.

Top

See Also

Reference

IO.Devices.ADC121C021 Namespace

Sample Constructor

Constructor for an ADC121C021 analog input.

Namespace: IO.Devices.ADC121C021
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# **VB** **F#** Copy

```
public Sample(
        Bus bus,
        byte addr
)
```

Parameters

bus
Type: IO.Interfaces.I2CBus
I^2C bus controller.

addr
Type: SystemByte
I^2C slave address.

See Also

Reference

Sample Class
IO.Devices.ADC121C021 Namespace

Sample Properties

The Sample type exposes the following members.

Properties

	Name	Description
	resolution	Return the number of bits of A/D resolution.
	sample	Returns a single 12-bit analog sample.

Top

See Also

Reference

Sample Class

IO.Devices.ADC121C021 Namespace

Sampleresolution Property

Return the number of bits of A/D resolution.

Namespace: IO.Devices.ADC121C021
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public int resolution { get; }
```

Property Value

Type: Int32

Implements

Sampleresolution

See Also

Reference

Sample Class
IO.Devices.ADC121C021 Namespace

Samplesample Property

Returns a single 12-bit analog sample.

Namespace: IO.Devices.ADC121C021
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public int sample { get; }
```

Property Value

Type: Int32

Implements

Samplesample

See Also

Reference

Sample Class
IO.Devices.ADC121C021 Namespace

IO.Devices.ClickBoards.RemoteIO.ADAC Namespace

Mikroelektronika ADAC Click MIKROE-2690 Services

Classes

	Class	Description
	Board	Encapsulates the Mikroelektronika ADAC Click Board. MIKROE-2690.

Board Class

Encapsulates the Mikroelektronika ADAC Click Board. MIKROE-2690.

Inheritance Hierarchy

SystemObject IO.Devices.ClickBoards.RemoteIO.ADACBoard

Namespace: IO.Devices.ClickBoards.RemoteIO.ADAC
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class Board
```

The Board type exposes the following members.

Constructors

	Name	Description
	Board	Constructor for a single ADAC click.

Top

Properties

	Name	Description
	device	Returns the underlying AD5593R device object.

Top

Methods

	Name	Description
	ADC	Factory function for creating ADC inputs.
	DAC	Factory function for creating DAC outputs.
	GPIO	Factory function for creating GPIO pins.
	Reset	Issue hardware reset to the AD5593R.

Top

Fields

	Name	Description
S	DefaultAddress	Default I^2C slave address.

Top

See Also

Reference

IO.Devices.ClickBoards.RemoteIO.ADAC Namespace

Board Constructor

Constructor for a single ADAC click.

Namespace: IO.Devices.ClickBoards.RemoteIO.ADAC
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Board(
        int socknum,
        int addr = 16,
        Device remdev = null
)
```

Parameters

socknum
Type: SystemInt32
mikroBUS socket number.

addr **(Optional)**
Type: SystemInt32
I^2C slave address.

remdev **(Optional)**
Type: IO.RemoteDevice
Remote I/O server device object.

See Also

Reference

Board Class

IO.Devices.ClickBoards.RemoteIO.ADAC Namespace

Board Properties

The Board type exposes the following members.

Properties

	Name	Description
	device	Returns the underlying AD5593R device object.

Top

See Also

Reference

Board Class

IO.Devices.ClickBoards.RemoteIO.ADAC Namespace

Boarddevice Property

Returns the underlying AD5593R device object.

Namespace: IO.Devices.ClickBoards.RemoteIO.ADAC
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public Device device { get; }
```

Property Value

Type: Device

See Also

Reference

Board Class
IO.Devices.ClickBoards.RemoteIO.ADAC Namespace

Board Methods

The Board type exposes the following members.

Methods

	Name	Description
	ADC	Factory function for creating ADC inputs.
	DAC	Factory function for creating DAC outputs.
	GPIO	Factory function for creating GPIO pins.
	Reset	Issue hardware reset to the AD5593R.

Top

See Also

Reference

Board Class

IO.Devices.ClickBoards.RemoteIO.ADAC Namespace

BoardADC Method

Factory function for creating ADC inputs.

Namespace: IO.Devices.ClickBoards.RemoteIO.ADAC
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Sample ADC(
        int channel
)
```

Parameters

channel
Type: SystemInt32
AD5593R I/O channel number (0 to 7).

Return Value

Type: Sample
ADC input object.

See Also

Reference

Board Class
IO.Devices.ClickBoards.RemoteIO.ADAC Namespace

BoardDAC Method

Factory function for creating DAC outputs.

Namespace: IO.Devices.ClickBoards.RemoteIO.ADAC
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Sample DAC(
        int channel,
        int sample = 0
)
```

Parameters

channel
Type: SystemInt32
AD5593R I/O channel number (0 to 7).

sample **(Optional)**
Type: SystemInt32
Initial DAC output sample.

Return Value

Type: Sample
DAC output object.

See Also

Reference

Board Class

IO.Devices.ClickBoards.RemoteIO.ADAC Namespace

BoardGPIO Method

Factory function for creating GPIO pins.

Namespace: IO.Devices.ClickBoards.RemoteIO.ADAC
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Pin GPIO(
        int channel,
        Direction dir,
        bool state = false
)
```

Parameters

channel
Type: SystemInt32
AD5593R I/O channel number (0 to 7).

dir
Type: IO.Interfaces.GPIODirection
GPIO pin direction.

state **(Optional)**
Type: SystemBoolean
Initial GPIO output state.

Return Value

Type: Pin
GPIO pin object.

See Also

Reference

Board Class

IO.Devices.ClickBoards.RemoteIO.ADAC Namespace

BoardReset Method

Issue hardware reset to the AD5593R.

Namespace: IO.Devices.ClickBoards.RemoteIO.ADAC
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public void Reset()
```

See Also

Reference

Board Class
IO.Devices.ClickBoards.RemoteIO.ADAC Namespace

Board Fields

The Board type exposes the following members.

Fields

	Name	Description
	DefaultAddress	Default I^2C slave address.

Top

See Also

Reference

Board Class

IO.Devices.ClickBoards.RemoteIO.ADAC Namespace

BoardDefaultAddress Field

Default I^{2}C slave address.

Namespace: IO.Devices.ClickBoards.RemoteIO.ADAC
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public const byte DefaultAddress = 16
```

Field Value

Type: Byte

See Also

Reference

Board Class
IO.Devices.ClickBoards.RemoteIO.ADAC Namespace

IO.Devices.ClickBoards.RemoteIO.Expand Namespace

Mikroelektronika Expand Click MIKROE-951 Services

Classes

	Class	Description
	Board	Encapsulates the Mikroelektronika Expand Click Board.

Board Class

Encapsulates the Mikroelektronika Expand Click Board.

Inheritance Hierarchy

SystemObject IO.Devices.ClickBoards.RemoteIO.ExpandBoard

Namespace: IO.Devices.ClickBoards.RemoteIO.Expand
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# **VB** **F#** Copy

```
public class Board
```

The Board type exposes the following members.

Constructors

	Name	Description
	Board	Constructor for a single Expand click.

Top

Properties

	Name	Description
	device	Returns the underlying MCP23S17 device object.

Top

Methods

	Name	Description
	GPIO	Factory function for creating GPIO pins.
	Reset	Issue hardware reset to the MCP23S17.

Top

See Also

Reference

IO.Devices.ClickBoards.RemoteIO.Expand Namespace

Board Constructor

Constructor for a single Expand click.

Namespace: IO.Devices.ClickBoards.RemoteIO.Expand
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Board(
        int socknum,
        Device remdev = null
)
```

Parameters

socknum
Type: SystemInt32
mikroBUS socket number.

remdev **(Optional)**
Type: IO.RemoteDevice
Remote I/O server device object.

See Also

Reference

Board Class
IO.Devices.ClickBoards.RemoteIO.Expand Namespace

Board Properties

The Board type exposes the following members.

Properties

	Name	Description
	device	Returns the underlying MCP23S17 device object.

Top

See Also

Reference

Board Class

IO.Devices.ClickBoards.RemoteIO.Expand Namespace

Boarddevice Property

Returns the underlying MCP23S17 device object.

Namespace: IO.Devices.ClickBoards.RemoteIO.Expand
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public Device device { get; }
```

Property Value

Type: Device

See Also

Reference

Board Class
IO.Devices.ClickBoards.RemoteIO.Expand Namespace

Board Methods

The Board type exposes the following members.

Methods

	Name	Description
	GPIO	Factory function for creating GPIO pins.
	Reset	Issue hardware reset to the MCP23S17.

Top

See Also

Reference

Board Class

IO.Devices.ClickBoards.RemoteIO.Expand Namespace

BoardGPIO Method

Factory function for creating GPIO pins.

Namespace: IO.Devices.ClickBoards.RemoteIO.Expand
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Pin GPIO(
        int channel,
        Direction dir,
        bool state = false
)
```

Parameters

channel
Type: SystemInt32
MCP23S17 channel number (0 to 15).

dir
Type: IO.Interfaces.GPIODirection
GPIO pin direction.

state **(Optional)**
Type: SystemBoolean
Initial GPIO output state.

Return Value

Type: Pin
GPIO pin object.

See Also

Reference

Board Class

IO.Devices.ClickBoards.RemoteIO.Expand Namespace

BoardReset Method

Issue hardware reset to the MCP23S17.

Namespace: IO.Devices.ClickBoards.RemoteIO.Expand
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public void Reset()
```

See Also

Reference

Board Class
IO.Devices.ClickBoards.RemoteIO.Expand Namespace

IO.Devices.ClickBoards.RemoteIO.Expand2 Namespace

Mikroelektronika Expand 2 Click MIKROE-1838 Services

Classes

	Class	Description
	Board	Encapsulates the Mikroelektronika Expand 2 Click Board.

Board Class

Encapsulates the Mikroelektronika Expand 2 Click Board.

Inheritance Hierarchy

SystemObject IO.Devices.ClickBoards.RemoteIO.Expand2Board

Namespace: IO.Devices.ClickBoards.RemoteIO.Expand2
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class Board
```

The Board type exposes the following members.

Constructors

	Name	Description
	Board	Constructor for a single Expand 2 click.

Top

Properties

	Name	Description
	device	Returns the underlying MCP23017 device object.

Top

Methods

	Name	Description
	GPIO	Factory function for creating GPIO pins.
	Reset	Issue hardware reset to the MCP23017.

Top

Fields

	Name	Description
S	DefaultAddress	Default I^2C slave address.

Top

See Also

Reference

IO.Devices.ClickBoards.RemoteIO.Expand2 Namespace

Board Constructor

Constructor for a single Expand 2 click.

Namespace: IO.Devices.ClickBoards.RemoteIO.Expand2
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Board(
        int socknum,
        int addr = 32,
        Device remdev = null
)
```

Parameters

socknum
Type: SystemInt32
mikroBUS socket number.

addr **(Optional)**
Type: SystemInt32
I^2C slave address.

remdev **(Optional)**
Type: IO.RemoteDevice
Remote I/O server device object.

See Also

Reference

Board Class

IO.Devices.ClickBoards.RemoteIO.Expand2 Namespace

Board Properties

The Board type exposes the following members.

Properties

	Name	Description
	device	Returns the underlying MCP23017 device object.

Top

See Also

Reference

Board Class

IO.Devices.ClickBoards.RemoteIO.Expand2 Namespace

Boarddevice Property

Returns the underlying MCP23017 device object.

Namespace: IO.Devices.ClickBoards.RemoteIO.Expand2
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public Device device { get; }
```

Property Value

Type: Device

See Also

Reference

Board Class
IO.Devices.ClickBoards.RemoteIO.Expand2 Namespace

Board Methods

The Board type exposes the following members.

Methods

	Name	Description
	GPIO	Factory function for creating GPIO pins.
	Reset	Issue hardware reset to the MCP23017.

Top

See Also

Reference

Board Class

IO.Devices.ClickBoards.RemoteIO.Expand2 Namespace

BoardGPIO Method

Factory function for creating GPIO pins.

Namespace: IO.Devices.ClickBoards.RemoteIO.Expand2
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Pin GPIO(
        int channel,
        Direction dir,
        bool state = false
)
```

Parameters

channel
Type: SystemInt32
MCP23017 channel number (0 to 15).

dir
Type: IO.Interfaces.GPIODirection
GPIO pin direction.

state **(Optional)**
Type: SystemBoolean
Initial GPIO output state.

Return Value

Type: Pin
GPIO pin object.

See Also

Reference

Board Class

IO.Devices.ClickBoards.RemoteIO.Expand2 Namespace

BoardReset Method

Issue hardware reset to the MCP23017.

Namespace: IO.Devices.ClickBoards.RemoteIO.Expand2
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public void Reset()
```

See Also

Reference

Board Class
IO.Devices.ClickBoards.RemoteIO.Expand2 Namespace

Board Fields

The Board type exposes the following members.

Fields

	Name	Description
	DefaultAddress	Default I^2C slave address.

Top

See Also

Reference

Board Class

IO.Devices.ClickBoards.RemoteIO.Expand2 Namespace

BoardDefaultAddress Field

Default I^{2}C slave address.

Namespace: IO.Devices.ClickBoards.RemoteIO.Expand2
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public const int DefaultAddress = 32
```

Field Value

Type: Int32

See Also

Reference

Board Class
IO.Devices.ClickBoards.RemoteIO.Expand2 Namespace

IO.Devices.ClickBoards.RemoteIO.PWM Namespace

Mikroelektronika PWM Click MIKROE-1898 Services

Classes

	Class	Description
	Board	Encapsulates the Mikroelektronika PWM Click Board. MIKROE-1898.

Board Class

Encapsulates the Mikroelektronika PWM Click Board. MIKROE-1898.

Inheritance Hierarchy

SystemObject IO.Devices.ClickBoards.RemoteIO.PWMBoard

Namespace: IO.Devices.ClickBoards.RemoteIO.PWM
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class Board
```

The Board type exposes the following members.

Constructors

	Name	Description
	Board	Constructor for a single PWM click.

Top

Properties

	Name	Description
	dev	Returns the underlying PCA9685 device object.

Top

Methods

	Name	Description
	GPIO	Factory function for creating GPIO output pins.
	PWM	Factory function for creating PWM outputs.
	Servo	Factory function for creating servo outputs.

Top

Fields

	Name	Description
S	DefaultAddress	Default I^2C slave address.

Top

See Also

Reference

IO.Devices.ClickBoards.RemoteIO.PWM Namespace

Board Constructor

Constructor for a single PWM click.

Namespace: IO.Devices.ClickBoards.RemoteIO.PWM
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Board(
        int socknum,
        int freq,
        int addr = 64,
        Device remdev = null
)
```

Parameters

socknum
Type: SystemInt32
mikroBUS socket number.

freq
Type: SystemInt32
PWM pulse frequency in Hz.

addr **(Optional)**
Type: SystemInt32
I^2C slave address.

remdev **(Optional)**
Type: IO.RemoteDevice
Remote I/O device object.

See Also

Reference

Board Class

IO.Devices.ClickBoards.RemoteIO.PWM Namespace

Board Properties

The Board type exposes the following members.

Properties

	Name	Description
	dev	Returns the underlying PCA9685 device object.

Top

See Also

Reference

Board Class

IO.Devices.ClickBoards.RemoteIO.PWM Namespace

Boarddev Property

Returns the underlying PCA9685 device object.

Namespace: IO.Devices.ClickBoards.RemoteIO.PWM
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Device dev { get; }
```

Property Value

Type: Device

See Also

Reference

Board Class
IO.Devices.ClickBoards.RemoteIO.PWM Namespace

Board Methods

The Board type exposes the following members.

Methods

	Name	Description
	GPIO	Factory function for creating GPIO output pins.
	PWM	Factory function for creating PWM outputs.
	Servo	Factory function for creating servo outputs.

Top

See Also

Reference

Board Class

IO.Devices.ClickBoards.RemoteIO.PWM Namespace

BoardGPIO Method

Factory function for creating GPIO output pins.

Namespace: IO.Devices.ClickBoards.RemoteIO.PWM
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Pin GPIO(
        int channel,
        bool state = false
)
```

Parameters

channel
Type: SystemInt32
PCA9685 output channel number.

state **(Optional)**
Type: SystemBoolean
Initial GPIO output state.

Return Value

Type: Pin
GPIO output pin object.

See Also

Reference

Board Class

IO.Devices.ClickBoards.RemoteIO.PWM Namespace

BoardPWM Method

Factory function for creating PWM outputs.

Namespace: IO.Devices.ClickBoards.RemoteIO.PWM
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# **VB** **F#** Copy

```
public Output PWM(
        int channel,
        double dutycycle = 0
)
```

Parameters

channel
Type: SystemInt32
PCA9685 output channel number.

dutycycle **(Optional)**
Type: SystemDouble
Initial PWM output duty cycle.

Return Value

Type: Output
PWM output object.

See Also

Reference

Board Class

IO.Devices.ClickBoards.RemoteIO.PWM Namespace

BoardServo Method

Factory function for creating servo outputs.

Namespace: IO.Devices.ClickBoards.RemoteIO.PWM
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Output Servo(
        int channel,
        double position = 0
)
```

Parameters

channel
Type: SystemInt32
PCA9685 output channel number.

position **(Optional)**
Type: SystemDouble
Initial servo position.>

Return Value

Type: Output
Servo output object.

See Also

Reference

Board Class

IO.Devices.ClickBoards.RemoteIO.PWM Namespace

Board Fields

The Board type exposes the following members.

Fields

	Name	Description
	DefaultAddress	Default I^2C slave address.

Top

See Also

Reference

Board Class

IO.Devices.ClickBoards.RemoteIO.PWM Namespace

BoardDefaultAddress Field

Default I^{2}C slave address.

Namespace: IO.Devices.ClickBoards.RemoteIO.PWM
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public const byte DefaultAddress = 64
```

Field Value

Type: Byte

See Also

Reference

Board Class
IO.Devices.ClickBoards.RemoteIO.PWM Namespace

IO.Devices.ClickBoards.RemoteIO.SevenSegment Namespace

Mikroelektronika 7Seg Click MIKROE-1201 Services

Classes

	Class	Description
	Board	Encapsulates the Mikroelektronika 7Seg Click Board. MIKROE-1201.

Enumerations

	Enumeration	Description
	BoardBase	Numeral systems.
	BoardZeroBlanking	Zero blanking modes.

Board Class

Encapsulates the Mikroelektronika 7Seg Click Board. MIKROE-1201.

Inheritance Hierarchy

SystemObject IO.Devices.ClickBoards.RemoteIO.SevenSegmentBoard

Namespace: IO.Devices.ClickBoards.RemoteIO.SevenSegment
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# **VB** **F#** Copy

```
public class Board
```

The Board type exposes the following members.

Constructors

	Name	Description
	Board	Constructor for a single 7seg click.

Top

Properties

	Name	Description
	blanking	Zero blanking mode. Allowed values are `None`, `Leading`, and `Full`.

	brightness	Write-only property for setting the brightness of the display. Allowed values are 0.0 to 100.0 percent.
	leftdp	Write-only property for setting the left digit decimal point.
	radix	Numerical base or radix. Allowed values are `Decimal` and `Hexadecimal`.
	rightdp	Write-only property for setting the right digit decimal point.
	state	Write-only property for setting the state of the display. Allowed values are 0 to 99 for decimal mode and 0 to 255 for hexadecimal mode.

Top

Methods

	Name	Description
	Clear	Clear the display.
	Reset	Issue hardware reset to the 74HC595 shift register chain.

Top

Remarks

The `MISO`*aka*`SDI` pin should be removed from the 7seg click, because it is not tri-state and will interfere with other devices on the same SPI

bus.

See Also

Reference

IO.Devices.ClickBoards.RemoteIO.SevenSegment Namespace

Board Constructor

Constructor for a single 7seg click.

Namespace: IO.Devices.ClickBoards.RemoteIO.SevenSegment
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Board(
        int socket,
        BoardBase radix = BoardBase.Decimal,
        BoardZeroBlanking blanking = BoardZeroBlanking
        int pwmfreq = 100,
        Device remdev = null
)
```

Parameters

socket
Type: SystemInt32
mikroBUS socket number.

radix **(Optional)**
Type: IO.Devices.ClickBoards.RemoteIO.SevenSegmentBoardBase
Numerical base or radix. Allowed values are `Decimal` and `Hexadecimal`.

blanking **(Optional)**
Type: IO.Devices.ClickBoards.RemoteIO.SevenSegmentBoardZeroBlanking
Zero blanking. Allowed values are `None`, `Leading`, and `Full`.

pwmfreq **(Optional)**

Type: SystemInt32

PWM frequency. Set to zero to use GPIO instead of PWM.

remdev **(Optional)**

Type: IO.RemoteDevice

Remote I/O server device object.

See Also

Reference

Board Class

IO.Devices.ClickBoards.RemoteIO.SevenSegment Namespace

Board Properties

The Board type exposes the following members.

Properties

	Name	Description
	blanking	Zero blanking mode. Allowed values are `None`, `Leading`, and `Full`.
	brightness	Write-only property for setting the brightness of the display. Allowed values are 0.0 to 100.0 percent.
	leftdp	Write-only property for setting the left digit decimal point.
	radix	Numerical base or radix. Allowed values are `Decimal` and `Hexadecimal`.
	rightdp	Write-only property for setting the right digit decimal point.
	state	Write-only property for setting the state of the display. Allowed values are 0 to 99 for decimal mode and 0 to 255 for hexadecimal mode.

Top

See Also

Reference

Board Class

IO.Devices.ClickBoards.RemoteIO.SevenSegment Namespace

Boardblanking Property

Zero blanking mode. Allowed values are `None`, `Leading`, and `Full`.

Namespace: IO.Devices.ClickBoards.RemoteIO.SevenSegment
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public BoardZeroBlanking blanking { get; set; }
```

Property Value

Type: BoardZeroBlanking

See Also

Reference

Board Class
IO.Devices.ClickBoards.RemoteIO.SevenSegment Namespace

Boardbrightness Property

Write-only property for setting the brightness of the display. Allowed values are 0.0 to 100.0 percent.

Namespace: IO.Devices.ClickBoards.RemoteIO.SevenSegment
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public double brightness { set; }
```

Property Value

Type: Double

See Also

Reference

Board Class
IO.Devices.ClickBoards.RemoteIO.SevenSegment Namespace

Boardleftdp Property

Write-only property for setting the left digit decimal point.

Namespace: IO.Devices.ClickBoards.RemoteIO.SevenSegment
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public bool leftdp { set; }
```

Property Value

Type: Boolean

See Also

Reference

Board Class
IO.Devices.ClickBoards.RemoteIO.SevenSegment Namespace

Boardradix Property

Numerical base or radix. Allowed values are `Decimal` and `Hexadecimal`.

Namespace: IO.Devices.ClickBoards.RemoteIO.SevenSegment
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public BoardBase radix { get; set; }
```

Property Value

Type: BoardBase

See Also

Reference

Board Class
IO.Devices.ClickBoards.RemoteIO.SevenSegment Namespace

Boardrightdp Property

Write-only property for setting the right digit decimal point.

Namespace: IO.Devices.ClickBoards.RemoteIO.SevenSegment
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public bool rightdp { set; }
```

Property Value

Type: Boolean

See Also

Reference

Board Class
IO.Devices.ClickBoards.RemoteIO.SevenSegment Namespace

Boardstate Property

Write-only property for setting the state of the display. Allowed values are 0 to 99 for decimal mode and 0 to 255 for hexadecimal mode.

Namespace: IO.Devices.ClickBoards.RemoteIO.SevenSegment
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public int state { set; }
```

Property Value

Type: Int32

See Also

Reference

Board Class
IO.Devices.ClickBoards.RemoteIO.SevenSegment Namespace

Board Methods

The Board type exposes the following members.

Methods

	Name	Description
	Clear	Clear the display.
	Reset	Issue hardware reset to the 74HC595 shift register chain.

Top

See Also

Reference

Board Class

IO.Devices.ClickBoards.RemoteIO.SevenSegment Namespace

BoardClear Method

Clear the display.

Namespace: IO.Devices.ClickBoards.RemoteIO.SevenSegment
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public void Clear()
```

See Also

Reference

Board Class
IO.Devices.ClickBoards.RemoteIO.SevenSegment Namespace

BoardReset Method

Issue hardware reset to the 74HC595 shift register chain.

Namespace: IO.Devices.ClickBoards.RemoteIO.SevenSegment
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public void Reset()
```

See Also

Reference

Board Class
IO.Devices.ClickBoards.RemoteIO.SevenSegment Namespace

BoardBase Enumeration

Numeral systems.

Namespace: IO.Devices.ClickBoards.RemoteIO.SevenSegment
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public enum Base
```

Members

Member name	Value	Description
Decimal	0	Base 10.
Hexadecimal	1	Base 16.

See Also

Reference

IO.Devices.ClickBoards.RemoteIO.SevenSegment Namespace

BoardZeroBlanking Enumeration

Zero blanking modes.

Namespace: IO.Devices.ClickBoards.RemoteIO.SevenSegment
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public enum ZeroBlanking
```

Members

Member name	Value	Description
None	0	No zero blanking.
Leading	1	Leading zero blanking.
Full	2	Full zero blanking.

See Also

Reference

IO.Devices.ClickBoards.RemoteIO.SevenSegment Namespace

IO.Devices.Grove.ADC Namespace

Seeed Studio Grove I^{2}C ADC (ADC121C021) Services

Classes

	Class	Description
	Device	Encapsulates the Seeed Studio Grove I^{2}C ADC (ADC121C021).

Device Class

Encapsulates the Seeed Studio Grove I^{2}C ADC (ADC121C021).

Inheritance Hierarchy

SystemObject IO.Devices.Grove.ADCDevice

Namespace: IO.Devices.Grove.ADC
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class Device
```

The Device type exposes the following members.

Constructors

	Name	Description
	Device	Constructor for a Seeed Studio Grove I^{2}C ADC (ADC121C021).

Top

Properties

	Name	Description
	voltage	Read-only property returning an analog

input voltage measurement.

Top

See Also

Reference

IO.Devices.Grove.ADC Namespace

Device Constructor

Constructor for a Seeed Studio Grove I^{2}C ADC (ADC121C021).

Namespace: IO.Devices.Grove.ADC
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public Device(
        Bus bus,
        byte addr = 80
)
```

Parameters

bus
Type: IO.Interfaces.I2CBus
I^{2}C bus object.

addr **(Optional)**
Type: SystemByte
I^{2}C device address.

See Also

Reference

Device Class
IO.Devices.Grove.ADC Namespace

Device Properties

The Device type exposes the following members.

Properties

	Name	Description
	voltage	Read-only property returning an analog input voltage measurement.

Top

See Also

Reference

Device Class

IO.Devices.Grove.ADC Namespace

Devicevoltage Property

Read-only property returning an analog input voltage measurement.

Namespace: IO.Devices.Grove.ADC
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public double voltage { get; }
```

Property Value

Type: Double

See Also

Reference

Device Class
IO.Devices.Grove.ADC Namespace

IO.Devices.Grove.Temperature Namespace

Seeed Studio Grove Temperature Sensor (thermistor) Services

Classes

	Class	Description
	Device	Encapsulates the Seeed Studio Grove Temperature Sensor (thermistor).

Device Class

Encapsulates the Seeed Studio Grove Temperature Sensor (thermistor).

Inheritance Hierarchy

SystemObject IO.Devices.Grove.TemperatureDevice

Namespace: IO.Devices.Grove.Temperature
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class Device : Sensor
```

The Device type exposes the following members.

Constructors

	Name	Description
	Device	Constructor for a Seeed Studio Grove Temperature Sensor (thermistor).

Top

Properties

	Name	Description
	Celsius	Read-only property returning the

		temperature in degrees Celsius.
	Fahrenheit	Read-only property returning the temperature in degrees Fahrenheit.
	Kelvins	Read-only property returning the temperature in Kelvins.

Top

See Also

Reference

IO.Devices.Grove.Temperature Namespace

Device Constructor

Constructor for a Seeed Studio Grove Temperature Sensor (thermistor).

Namespace: IO.Devices.Grove.Temperature
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# **VB** **F#** Copy

```
public Device(
        Voltage Vin,
        double Vcc = 3.3
)
```

Parameters

Vin
Type: IO.Interfaces.ADCVoltage
Voltage input object.

Vcc **(Optional)**
Type: SystemDouble
Reference voltage.

See Also

Reference

Device Class
IO.Devices.Grove.Temperature Namespace

Device Properties

The Device type exposes the following members.

Properties

	Name	Description
	Celsius	Read-only property returning the temperature in degrees Celsius.
	Fahrenheit	Read-only property returning the temperature in degrees Fahrenheit.
	Kelvins	Read-only property returning the temperature in Kelvins.

Top

See Also

Reference

Device Class

IO.Devices.Grove.Temperature Namespace

DeviceCelsius Property

Read-only property returning the temperature in degrees Celsius.

Namespace: IO.Devices.Grove.Temperature
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public double Celsius { get; }
```

Property Value

Type: Double

Implements

SensorCelsius

See Also

Reference

Device Class
IO.Devices.Grove.Temperature Namespace

DeviceFahrenheit Property

Read-only property returning the temperature in degrees Fahrenheit.

Namespace: IO.Devices.Grove.Temperature
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public double Fahrenheit { get; }
```

Property Value

Type: Double

Implements

SensorFahrenheit

See Also

Reference

Device Class
IO.Devices.Grove.Temperature Namespace

DeviceKelvins Property

Read-only property returning the temperature in Kelvins.

Namespace: IO.Devices.Grove.Temperature
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public double Kelvins { get; }
```

Property Value

Type: Double

Implements

SensorKelvins

See Also

Reference

Device Class
IO.Devices.Grove.Temperature Namespace

IO.Devices.Grove.Temperature_Humidity Namespace

Seeed Studio Grove Temperature and Humdity Sensor (TH02) Services.

Classes

	Class	Description
	Device	Encapsulate the Seeed Studio Grove Temperature and Humidity Sensor (TH02).

Device Class

Encapsulate the Seeed Studio Grove Temperature and Humidity Sensor (TH02).

Inheritance Hierarchy

SystemObject IO.Devices.TH02Device
IO.Devices.Grove.Temperature_HumidityDevice

Namespace: IO.Devices.Grove.Temperature_Humidity
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# **VB** **F#** Copy

```
public class Device : Device
```

The Device type exposes the following members.

Constructors

	Name	Description
	Device	Constructor for a Seeed Studio Grove Temperature and Humidity Sensor (TH02).

Top

Properties

	Name	Description
	Celsius	Read-only property returning the temperature in degrees Celsius. (Inherited from Device.)
	DeviceID	Read-only property returning the device ID. (Inherited from Device.)
	Fahrenheit	Read-only property returning the temperature in degrees Fahrenheit. (Inherited from Device.)
	Humidity	Read-only property returning the percentage relative humidity. (Inherited from Device.)
	Kelvins	Read-only property returning the temperature in Kelvins. (Inherited from Device.)

Top

See Also

Reference

IO.Devices.Grove.Temperature_Humidity Namespace

Device Constructor

Constructor for a Seeed Studio Grove Temperature and Humidity Sensor (TH02).

Namespace: IO.Devices.Grove.Temperature_Humidity
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# **VB** **F#** Copy

```
public Device(
        Bus bus
)
```

Parameters

bus
Type: IO.Interfaces.I2CBus
I^2 bus object.

See Also

Reference

Device Class
IO.Devices.Grove.Temperature_Humidity Namespace

Device Properties

The Device type exposes the following members.

Properties

	Name	Description
	Celsius	Read-only property returning the temperature in degrees Celsius. (Inherited from Device.)
	DeviceID	Read-only property returning the device ID. (Inherited from Device.)
	Fahrenheit	Read-only property returning the temperature in degrees Fahrenheit. (Inherited from Device.)
	Humidity	Read-only property returning the percentage relative humidity. (Inherited from Device.)
	Kelvins	Read-only property returning the temperature in Kelvins. (Inherited from Device.)

Top

See Also

Reference

Device Class

IO.Devices.Grove.Temperature_Humidity Namespace

IO.Devices.HDC1080 Namespace

HDC1080 I^2C Temperature/Humidity Sensor Services

Classes

	Class	Description
	Device	Encapsulates the HDC1080 temperature and humidity sensor.

Device Class

Encapsulates the HDC1080 temperature and humidity sensor.

Inheritance Hierarchy

SystemObject IO.Devices.HDC1080Device
IO.Devices.Pmod.HYGRODevice

Namespace: IO.Devices.HDC1080
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class Device : Sensor, Sensor
```

The Device type exposes the following members.

Constructors

	Name	Description
	Device	Constructor for an HDC1080 temperature and humidity sensor object.

Top

Properties

	Name	Description

	Celsius	Read-only property returning the temperature in degrees Celsius.
	DeviceID	Read-only property returning the device ID.
	Fahrenheit	Read-only property returning the temperature in degrees Fahrenheit.
	Humidity	Read-only property returning the percentage relative humidity.
	Kelvins	Read-only property returning the temperature in Kelvins.
	ManufacturerID	Read-only property returning the manufacturer ID.

Top

Methods

	Name	Description
	Read	Read from an HDC1080 device register.
	Write	Write to an HDC1080 device register.

Top

Fields

	Name	Description
S	RegConfiguration	Configuration Register

		address.
	RegDeviceID	Device ID Register address.
	RegHumidity	Humidity Register address.
	RegManufacturerID	Manufacturer ID Register address.
	RegSerialNumberFirst	Serial Number First Bits Register address.
	RegSerialNumberLast	Serial Number Last Bits Register address.
	RegSerialNumberMid	Serial Number Middle Bits Register address.
	RegTemperature	Temperature Register address.

Top

See Also

Reference

IO.Devices.HDC1080 Namespace

Device Constructor

Constructor for an HDC1080 temperature and humidity sensor object.

Namespace: IO.Devices.HDC1080
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# **VB** **F#** Copy

```
public Device(
        Bus bus
)
```

Parameters

bus
Type: IO.Interfaces.I2CBus
I^2C bus controller.

See Also

Reference

Device Class
IO.Devices.HDC1080 Namespace

Device Properties

The Device type exposes the following members.

Properties

	Name	Description
	Celsius	Read-only property returning the temperature in degrees Celsius.
	DeviceID	Read-only property returning the device ID.
	Fahrenheit	Read-only property returning the temperature in degrees Fahrenheit.
	Humidity	Read-only property returning the percentage relative humidity.
	Kelvins	Read-only property returning the temperature in Kelvins.
	ManufacturerID	Read-only property returning the manufacturer ID.

Top

See Also

Reference

Device Class
IO.Devices.HDC1080 Namespace

DeviceCelsius Property

Read-only property returning the temperature in degrees Celsius.

Namespace: IO.Devices.HDC1080
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public double Celsius { get; }
```

Property Value

Type: Double

Implements

SensorCelsius

See Also

Reference

Device Class
IO.Devices.HDC1080 Namespace

DeviceDeviceID Property

Read-only property returning the device ID.

Namespace: IO.Devices.HDC1080
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public ushort DeviceID { get; }
```

Property Value

Type: UInt16

See Also

Reference

Device Class
IO.Devices.HDC1080 Namespace

DeviceFahrenheit Property

Read-only property returning the temperature in degrees Fahrenheit.

Namespace: IO.Devices.HDC1080
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public double Fahrenheit { get; }
```

Property Value

Type: Double

Implements

SensorFahrenheit

See Also

Reference

Device Class
IO.Devices.HDC1080 Namespace

DeviceHumidity Property

Read-only property returning the percentage relative humidity.

Namespace: IO.Devices.HDC1080
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public double Humidity { get; }
```

Property Value

Type: Double

Implements

SensorHumidity

See Also

Reference

Device Class
IO.Devices.HDC1080 Namespace

DeviceKelvins Property

Read-only property returning the temperature in Kelvins.

Namespace: IO.Devices.HDC1080
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public double Kelvins { get; }
```

Property Value

Type: Double

Implements

SensorKelvins

See Also

Reference

Device Class
IO.Devices.HDC1080 Namespace

DeviceManufacturerID Property

Read-only property returning the manufacturer ID.

Namespace: IO.Devices.HDC1080
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public ushort ManufacturerID { get; }
```

Property Value

Type: UInt16

See Also

Reference

Device Class
IO.Devices.HDC1080 Namespace

Device Methods

The Device type exposes the following members.

Methods

	Name	Description
	Read	Read from an HDC1080 device register.
	Write	Write to an HDC1080 device register.

Top

See Also

Reference

Device Class

IO.Devices.HDC1080 Namespace

DeviceRead Method

Read from an HDC1080 device register.

Namespace: IO.Devices.HDC1080
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# **VB** **F#** Copy

```
public ushort Read(
        byte reg
)
```

Parameters

reg
Type: SystemByte
8-bit register address.

Return Value

Type: UInt16
16-bit register data

See Also

Reference

Device Class
IO.Devices.HDC1080 Namespace

DeviceWrite Method

Write to an HDC1080 device register.

Namespace: IO.Devices.HDC1080
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public void Write(
        byte reg,
        ushort data
)
```

Parameters

reg
Type: SystemByte
8-bit register address.

data
Type: SystemUInt16
16-bit register data.

See Also

Reference

Device Class
IO.Devices.HDC1080 Namespace

Device Fields

The Device type exposes the following members.

Fields

	Name	Description
	RegConfiguration	Configuration Register address.
	RegDeviceID	Device ID Register address.
	RegHumidity	Humidity Register address.
	RegManufacturerID	Manufacturer ID Register address.
	RegSerialNumberFirst	Serial Number First Bits Register address.
	RegSerialNumberLast	Serial Number Last Bits Register address.
	RegSerialNumberMid	Serial Number Middle Bits Register address.
	RegTemperature	Temperature Register address.

Top

See Also

Reference

Device Class

IO.Devices.HDC1080 Namespace

DeviceRegConfiguration Field

Configuration Register address.

Namespace: IO.Devices.HDC1080
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const byte RegConfiguration = 2
```

Field Value

Type: Byte

See Also

Reference

Device Class
IO.Devices.HDC1080 Namespace

DeviceRegDeviceID Field

Device ID Register address.

Namespace: IO.Devices.HDC1080
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const byte RegDeviceID = 255
```

Field Value

Type: Byte

See Also

Reference

Device Class
IO.Devices.HDC1080 Namespace

DeviceRegHumidity Field

Humidity Register address.

Namespace: IO.Devices.HDC1080
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const byte RegHumidity = 1
```

Field Value

Type: Byte

See Also

Reference

Device Class
IO.Devices.HDC1080 Namespace

DeviceRegManufacturerID Field

Manufacturer ID Register address.

Namespace: IO.Devices.HDC1080
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const byte RegManufacturerID = 254
```

Field Value

Type: Byte

See Also

Reference

Device Class
IO.Devices.HDC1080 Namespace

DeviceRegSerialNumberFirst Field

Serial Number First Bits Register address.

Namespace: IO.Devices.HDC1080
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const byte RegSerialNumberFirst = 251
```

Field Value

Type: Byte

See Also

Reference

Device Class
IO.Devices.HDC1080 Namespace

DeviceRegSerialNumberLast Field

Serial Number Last Bits Register address.

Namespace: IO.Devices.HDC1080
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const byte RegSerialNumberLast = 253
```

Field Value

Type: Byte

See Also

Reference

Device Class
IO.Devices.HDC1080 Namespace

DeviceRegSerialNumberMid Field

Serial Number Middle Bits Register address.

Namespace: IO.Devices.HDC1080
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const byte RegSerialNumberMid = 252
```

Field Value

Type: Byte

See Also

Reference

Device Class
IO.Devices.HDC1080 Namespace

DeviceRegTemperature Field

Temperature Register address.

Namespace: IO.Devices.HDC1080
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const byte RegTemperature = 0
```

Field Value

Type: Byte

See Also

Reference

Device Class
IO.Devices.HDC1080 Namespace

IO.Devices.MCP23017 Namespace

MCP23017 I^2C GPIO Expander Device Services.

Classes

	Class	Description
	Device	Encapsulates the MCP23017 I^2C I/O GPIO Expander.

Device Class

Encapsulates the MCP23017 I^{2}C I/O GPIO Expander.

Inheritance Hierarchy

SystemObject IO.Devices.MCP23017Device

Namespace: IO.Devices.MCP23017
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class Device
```

The Device type exposes the following members.

Constructors

	Name	Description
	Device	Constructor for a single MCP23017 device.

Top

Properties

	Name	Description
	Direction	Data Direction Property (16 bits). Bits 0

		to 7 correspond to PORT A and bits 8 to 15 correspond to PORT B. For each bit, 0=input and 1=output.
	DirectionA	Port A Data Direction Property (8 bits). For each bit, 0=input and 1=output.
	DirectionB	Port B Data Direction Property (8 bits). For each bit, 0=input and 1=output.
	Polarity	Data Polarity Property (16 bits). Bits 0 to 7 correspond to PORT A and bits 8 to 15 correspond to PORT B. For each bit, 0=input and 1=output.
	PolarityA	Port A Data Polarity Property (8 bits). For each bit, 0=input and 1=output.
	PolarityB	Port B Data Polarity Property (8 bits). For each bit, 0=input and 1=output.
	Port	Port Data Property (16 bites). Bits 0 to 7 correspond to PORT A and bits 8 to 15 correspond to PORT B.
	PortA	Port A Data Property (8 bits).
	PortB	Port B Data Property (8 bits).
	Pullups	Input Pullup Property (16 bits). Bits 0 to 7 correspond to PORT A and bits 8 to 15 correspond to PORT B. For each bit, 0=high impedance and 1=100k pullup.

	PullupsA	Port A Input Pullup Property (16 bits). For each bit, 0=high impedance and 1=100k pullup.
	PullupsB	Port B Input Pullup Property (16 bits). For each bit, 0=high impedance and 1=100k pullup.

Top

Methods

	Name	Description
	GPIO_Create	Create an MCP23017 GPIO pin object.

Top

Fields

	Name	Description
S	MaxChannel	Maximum I/O channel number.
S	MinChannel	Minimum I/O channel number.

Top

See Also

Reference

IO.Devices.MCP23017 Namespace

Device Constructor

Constructor for a single MCP23017 device.

Namespace: IO.Devices.MCP23017
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Device(
        Bus bus,
        int addr
)
```

Parameters

bus
Type: IO.Interfaces.I2CBus
I^2C bus controller object.

addr
Type: SystemInt32
I^2C slave address.

See Also

Reference

Device Class
IO.Devices.MCP23017 Namespace

Device Properties

The Device type exposes the following members.

Properties

	Name	Description
	Direction	Data Direction Property (16 bits). Bits 0 to 7 correspond to PORT A and bits 8 to 15 correspond to PORT B. For each bit, 0=input and 1=output.
	DirectionA	Port A Data Direction Property (8 bits). For each bit, 0=input and 1=output.
	DirectionB	Port B Data Direction Property (8 bits). For each bit, 0=input and 1=output.
	Polarity	Data Polarity Property (16 bits). Bits 0 to 7 correspond to PORT A and bits 8 to 15 correspond to PORT B. For each bit, 0=input and 1=output.
	PolarityA	Port A Data Polarity Property (8 bits). For each bit, 0=input and 1=output.
	PolarityB	Port B Data Polarity Property (8 bits). For each bit, 0=input and 1=output.
	Port	Port Data Property (16 bites). Bits 0 to 7 correspond to PORT A and bits 8 to

		15 correspond to PORT B.
	PortA	Port A Data Property (8 bits).
	PortB	Port B Data Property (8 bits).
	Pullups	Input Pullup Property (16 bits). Bits 0 to 7 correspond to PORT A and bits 8 to 15 correspond to PORT B. For each bit, 0=high impedance and 1=100k pullup.
	PullupsA	Port A Input Pullup Property (16 bits). For each bit, 0=high impedance and 1=100k pullup.
	PullupsB	Port B Input Pullup Property (16 bits). For each bit, 0=high impedance and 1=100k pullup.

Top

See Also

Reference

Device Class

IO.Devices.MCP23017 Namespace

DeviceDirection Property

Data Direction Property (16 bits). Bits 0 to 7 correspond to PORT A and bits 8 to 15 correspond to PORT B. For each bit, 0=input and 1=output.

Namespace: IO.Devices.MCP23017
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public uint Direction { get; set; }
```

Property Value

Type: UInt32

Remarks

This property follows the industry standard convention for data direction bit polarity (1=output) rather than the MCP23017 `IODIR` register polarity (0=output).

See Also

Reference

Device Class
IO.Devices.MCP23017 Namespace

DeviceDirectionA Property

Port A Data Direction Property (8 bits). For each bit, 0=input and 1=output.

Namespace: IO.Devices.MCP23017
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public byte DirectionA { get; set; }
```

Property Value

Type: Byte

Remarks

This property follows the industry standard convention for data direction bit polarity (1=output) rather than the MCP23017 `IODIRA` register polarity (0=output).

See Also

Reference

Device Class
IO.Devices.MCP23017 Namespace

DeviceDirectionB Property

Port B Data Direction Property (8 bits). For each bit, 0=input and 1=output.

Namespace: IO.Devices.MCP23017
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public byte DirectionB { get; set; }
```

Property Value

Type: Byte

Remarks

This property follows the industry standard convention for data direction bit polarity (1=output) rather than the MCP23017 `IODIRA` register polarity (0=output).

See Also

Reference

Device Class
IO.Devices.MCP23017 Namespace

DevicePolarity Property

Data Polarity Property (16 bits). Bits 0 to 7 correspond to PORT A and bits 8 to 15 correspond to PORT B. For each bit, 0=input and 1=output.

Namespace: IO.Devices.MCP23017
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public uint Polarity { get; set; }
```

Property Value

Type: UInt32

See Also

Reference

Device Class
IO.Devices.MCP23017 Namespace

DevicePolarityA Property

Port A Data Polarity Property (8 bits). For each bit, 0=input and 1=output.

Namespace: IO.Devices.MCP23017
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public byte PolarityA { get; set; }
```

Property Value

Type: Byte

See Also

Reference

Device Class
IO.Devices.MCP23017 Namespace

DevicePolarityB Property

Port B Data Polarity Property (8 bits). For each bit, 0=input and 1=output.

Namespace: IO.Devices.MCP23017
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public byte PolarityB { get; set; }
```

Property Value

Type: Byte

See Also

Reference

Device Class
IO.Devices.MCP23017 Namespace

DevicePort Property

Port Data Property (16 bites). Bits 0 to 7 correspond to PORT A and bits 8 to 15 correspond to PORT B.

Namespace: IO.Devices.MCP23017
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public uint Port { get; set; }
```

Property Value

Type: UInt32

See Also

Reference

Device Class
IO.Devices.MCP23017 Namespace

DevicePortA Property

Port A Data Property (8 bits).

Namespace: IO.Devices.MCP23017
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public byte PortA { get; set; }
```

Property Value

Type: Byte

See Also

Reference

Device Class
IO.Devices.MCP23017 Namespace

DevicePortB Property

Port B Data Property (8 bits).

Namespace: IO.Devices.MCP23017
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public byte PortB { get; set; }
```

Property Value

Type: Byte

See Also

Reference

Device Class
IO.Devices.MCP23017 Namespace

DevicePullups Property

Input Pullup Property (16 bits). Bits 0 to 7 correspond to PORT A and bits 8 to 15 correspond to PORT B. For each bit, 0=high impedance and 1=100k pullup.

Namespace: IO.Devices.MCP23017
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# **VB** **F#** Copy

```
public uint Pullups { get; set; }
```

Property Value

Type: UInt32

See Also

Reference

Device Class
IO.Devices.MCP23017 Namespace

DevicePullupsA Property

Port A Input Pullup Property (16 bits). For each bit, 0=high impedance and 1=100k pullup.

Namespace: IO.Devices.MCP23017
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public byte PullupsA { get; set; }
```

Property Value

Type: Byte

See Also

Reference

Device Class
IO.Devices.MCP23017 Namespace

DevicePullupsB Property

Port B Input Pullup Property (16 bits). For each bit, 0=high impedance and 1=100k pullup.

Namespace: IO.Devices.MCP23017
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public byte PullupsB { get; set; }
```

Property Value

Type: Byte

See Also

Reference

Device Class
IO.Devices.MCP23017 Namespace

Device Methods

The Device type exposes the following members.

Methods

	Name	Description
	GPIO_Create	Create an MCP23017 GPIO pin object.

Top

See Also

Reference

Device Class

IO.Devices.MCP23017 Namespace

DeviceGPIO_Create Method

Create an MCP23017 GPIO pin object.

Namespace: IO.Devices.MCP23017
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Pin GPIO_Create(
        int channel,
        Direction dir,
        bool state = false
)
```

Parameters

channel
Type: SystemInt32
MCP23017 channel number (0 to 15).

dir
Type: IO.Interfaces.GPIODirection
GPIO pin data direction.

state **(Optional)**
Type: SystemBoolean
Initial GPIO output state.

Return Value

Type: Pin
GPIO pin object.

See Also

Reference

Device Class

IO.Devices.MCP23017 Namespace

Device Fields

The Device type exposes the following members.

Fields

	Name	Description
	MaxChannel	Maximum I/O channel number.
	MinChannel	Minimum I/O channel number.

Top

See Also

Reference

Device Class

IO.Devices.MCP23017 Namespace

DeviceMaxChannel Field

Maximum I/O channel number.

Namespace: IO.Devices.MCP23017
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const int MaxChannel = 15
```

Field Value

Type: Int32

See Also

Reference

Device Class
IO.Devices.MCP23017 Namespace

DeviceMinChannel Field

Minimum I/O channel number.

Namespace: IO.Devices.MCP23017
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const int MinChannel = 0
```

Field Value

Type: Int32

See Also

Reference

Device Class
IO.Devices.MCP23017 Namespace

IO.Devices.MCP23017.GPIO Namespace

MCP23017 I^2C GPIO Expander GPIO Pin Services.

Classes

	Class	Description
	Pin	Encapsulates MCP23017 GPIO pins.

Pin Class

Encapsulates MCP23017 GPIO pins.

Inheritance Hierarchy

SystemObject IO.Devices.MCP23017.GPIOPin

Namespace: IO.Devices.MCP23017.GPIO
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class Pin : Pin
```

The Pin type exposes the following members.

Constructors

	Name	Description
	Pin	Create a single MCP23017 GPIO pin.

Top

Properties

	Name	Description
	state	Read/Write GPIO state property.

Top

See Also

Reference

IO.Devices.MCP23017.GPIO Namespace

Pin Constructor

Create a single MCP23017 GPIO pin.

Namespace: IO.Devices.MCP23017.GPIO
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Pin(
        Device dev,
        int channel,
        Direction dir,
        bool state = false
)
```

Parameters

dev
Type: IO.Devices.MCP23017Device
MCP23017 device object.

channel
Type: SystemInt32
MCP23017 I/O channel number.

dir
Type: IO.Interfaces.GPIODirection
GPIO pin data direction.

state **(Optional)**
Type: SystemBoolean
Initial GPIO output state.

See Also

Reference

Pin Class

IO.Devices.MCP23017.GPIO Namespace

Pin Properties

The Pin type exposes the following members.

Properties

	Name	Description
	state	Read/Write GPIO state property.

Top

See Also

Reference

Pin Class

IO.Devices.MCP23017.GPIO Namespace

Pinstate Property

Read/Write GPIO state property.

Namespace: IO.Devices.MCP23017.GPIO
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public bool state { get; set; }
```

Property Value

Type: Boolean

Implements

Pinstate

See Also

Reference

Pin Class
IO.Devices.MCP23017.GPIO Namespace

IO.Devices.MCP23S17 Namespace

MCP23S17 SPI GPIO Expander Device Services.

Classes

	Class	Description
	Device	Encapsulates the MCP23S17 SPI I/O GPIO Expander.

Device Class

Encapsulates the MCP23S17 SPI I/O GPIO Expander.

Inheritance Hierarchy

SystemObject IO.Devices.MCP23S17Device

Namespace: IO.Devices.MCP23S17
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# **VB** **F#** Copy

```
public class Device
```

The Device type exposes the following members.

Constructors

	Name	Description
	Device	Constructor for a single MCP23S17 device.

Top

Properties

	Name	Description
	Direction	Data Direction Property (16 bits). Bits 0

		to 7 correspond to PORT A and bits 8 to 15 correspond to PORT B. For each bit, 0=input and 1=output.
	DirectionA	Port A Data Direction Property (8 bits). For each bit, 0=input and 1=output.
	DirectionB	Port B Data Direction Property (8 bits). For each bit, 0=input and 1=output.
	Polarity	Data Polarity Property (16 bits). Bits 0 to 7 correspond to PORT A and bits 8 to 15 correspond to PORT B. For each bit, 0=input and 1=output.
	PolarityA	Port A Data Polarity Property (8 bits). For each bit, 0=input and 1=output.
	PolarityB	Port B Data Polarity Property (8 bits). For each bit, 0=input and 1=output.
	Port	Port Data Property (16 bites). Bits 0 to 7 correspond to PORT A and bits 8 to 15 correspond to PORT B.
	PortA	Port A Data Property (8 bits).
	PortB	Port B Data Property (8 bits).
	Pullups	Input Pullup Property (16 bits). Bits 0 to 7 correspond to PORT A and bits 8 to 15 correspond to PORT B. For each bit, 0=high impedance and 1=100k pullup.

	PullupsA	Port A Input Pullup Property (16 bits). For each bit, 0=high impedance and 1=100k pullup.
	PullupsB	Port B Input Pullup Property (16 bits). For each bit, 0=high impedance and 1=100k pullup.

Top

Methods

	Name	Description
	GPIO_Create	Create an MCP23S17 GPIO pin object.

Top

Fields

	Name	Description
S	MaxChannel	Maximum I/O channel number.
S	MinChannel	Minimum I/O channel number.
S	SPI_Frequency	SPI maximum clock frequency in Hz.
S	SPI_Mode	SPI transfer mode.
S	SPI_WordSize	SPI transaction word size.

Top

See Also

Reference

IO.Devices.MCP23S17 Namespace

Device Constructor

Constructor for a single MCP23S17 device.

Namespace: IO.Devices.MCP23S17
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# **VB** **F#** Copy

```
public Device(
        Device dev
)
```

Parameters

dev
Type: IO.Interfaces.SPIDevice
SPI slave device object.

See Also

Reference

Device Class
IO.Devices.MCP23S17 Namespace

Device Properties

The Device type exposes the following members.

Properties

	Name	Description
	Direction	Data Direction Property (16 bits). Bits 0 to 7 correspond to PORT A and bits 8 to 15 correspond to PORT B. For each bit, 0=input and 1=output.
	DirectionA	Port A Data Direction Property (8 bits). For each bit, 0=input and 1=output.
	DirectionB	Port B Data Direction Property (8 bits). For each bit, 0=input and 1=output.
	Polarity	Data Polarity Property (16 bits). Bits 0 to 7 correspond to PORT A and bits 8 to 15 correspond to PORT B. For each bit, 0=input and 1=output.
	PolarityA	Port A Data Polarity Property (8 bits). For each bit, 0=input and 1=output.
	PolarityB	Port B Data Polarity Property (8 bits). For each bit, 0=input and 1=output.
	Port	Port Data Property (16 bites). Bits 0 to 7 correspond to PORT A and bits 8 to

		15 correspond to PORT B.
	PortA	Port A Data Property (8 bits).
	PortB	Port B Data Property (8 bits).
	Pullups	Input Pullup Property (16 bits). Bits 0 to 7 correspond to PORT A and bits 8 to 15 correspond to PORT B. For each bit, 0=high impedance and 1=100k pullup.
	PullupsA	Port A Input Pullup Property (16 bits). For each bit, 0=high impedance and 1=100k pullup.
	PullupsB	Port B Input Pullup Property (16 bits). For each bit, 0=high impedance and 1=100k pullup.

Top

See Also

Reference

Device Class

IO.Devices.MCP23S17 Namespace

DeviceDirection Property

Data Direction Property (16 bits). Bits 0 to 7 correspond to PORT A and bits 8 to 15 correspond to PORT B. For each bit, 0=input and 1=output.

Namespace: IO.Devices.MCP23S17
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public uint Direction { get; set; }
```

Property Value

Type: UInt32

Remarks

This property follows the industry standard convention for data direction bit polarity (1=output) rather than the MCP23S17 `IODIR` register polarity (0=output).

See Also

Reference

Device Class
IO.Devices.MCP23S17 Namespace

DeviceDirectionA Property

Port A Data Direction Property (8 bits). For each bit, 0=input and 1=output.

Namespace: IO.Devices.MCP23S17
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public byte DirectionA { get; set; }
```

Property Value

Type: Byte

Remarks

This property follows the industry standard convention for data direction bit polarity (1=output) rather than the MCP23S17 `IODIRA` register polarity (0=output).

See Also

Reference

Device Class
IO.Devices.MCP23S17 Namespace

DeviceDirectionB Property

Port B Data Direction Property (8 bits). For each bit, 0=input and 1=output.

Namespace: IO.Devices.MCP23S17
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public byte DirectionB { get; set; }
```

Property Value

Type: Byte

Remarks

This property follows the industry standard convention for data direction bit polarity (1=output) rather than the MCP23S17 `IODIRA` register polarity (0=output).

See Also

Reference

Device Class
IO.Devices.MCP23S17 Namespace

DevicePolarity Property

Data Polarity Property (16 bits). Bits 0 to 7 correspond to PORT A and bits 8 to 15 correspond to PORT B. For each bit, 0=input and 1=output.

Namespace: IO.Devices.MCP23S17
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public uint Polarity { get; set; }
```

Property Value

Type: UInt32

See Also

Reference

Device Class
IO.Devices.MCP23S17 Namespace

DevicePolarityA Property

Port A Data Polarity Property (8 bits). For each bit, 0=input and 1=output.

Namespace: IO.Devices.MCP23S17
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public byte PolarityA { get; set; }
```

Property Value

Type: Byte

See Also

Reference

Device Class
IO.Devices.MCP23S17 Namespace

DevicePolarityB Property

Port B Data Polarity Property (8 bits). For each bit, 0=input and 1=output.

Namespace: IO.Devices.MCP23S17
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public byte PolarityB { get; set; }
```

Property Value

Type: Byte

See Also

Reference

Device Class
IO.Devices.MCP23S17 Namespace

DevicePort Property

Port Data Property (16 bites). Bits 0 to 7 correspond to PORT A and bits 8 to 15 correspond to PORT B.

Namespace: IO.Devices.MCP23S17
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public uint Port { get; set; }
```

Property Value

Type: UInt32

See Also

Reference

Device Class
IO.Devices.MCP23S17 Namespace

DevicePortA Property

Port A Data Property (8 bits).

Namespace: IO.Devices.MCP23S17
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public byte PortA { get; set; }
```

Property Value

Type: Byte

See Also

Reference

Device Class
IO.Devices.MCP23S17 Namespace

DevicePortB Property

Port B Data Property (8 bits).

Namespace: IO.Devices.MCP23S17
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public byte PortB { get; set; }
```

Property Value

Type: Byte

See Also

Reference

Device Class
IO.Devices.MCP23S17 Namespace

DevicePullups Property

Input Pullup Property (16 bits). Bits 0 to 7 correspond to PORT A and bits 8 to 15 correspond to PORT B. For each bit, 0=high impedance and 1=100k pullup.

Namespace: IO.Devices.MCP23S17
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public uint Pullups { get; set; }
```

Property Value

Type: UInt32

See Also

Reference

Device Class
IO.Devices.MCP23S17 Namespace

DevicePullupsA Property

Port A Input Pullup Property (16 bits). For each bit, 0=high impedance and 1=100k pullup.

Namespace: IO.Devices.MCP23S17
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public byte PullupsA { get; set; }
```

Property Value

Type: Byte

See Also

Reference

Device Class
IO.Devices.MCP23S17 Namespace

DevicePullupsB Property

Port B Input Pullup Property (16 bits). For each bit, 0=high impedance and 1=100k pullup.

Namespace: IO.Devices.MCP23S17
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public byte PullupsB { get; set; }
```

Property Value

Type: Byte

See Also

Reference

Device Class
IO.Devices.MCP23S17 Namespace

Device Methods

The Device type exposes the following members.

Methods

	Name	Description
	GPIO_Create	Create an MCP23S17 GPIO pin object.

Top

See Also

Reference

Device Class

IO.Devices.MCP23S17 Namespace

DeviceGPIO_Create Method

Create an MCP23S17 GPIO pin object.

Namespace: IO.Devices.MCP23S17
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Pin GPIO_Create(
        int channel,
        Direction dir,
        bool state = false
)
```

Parameters

channel
Type: SystemInt32
MCP23S17 channel number (0 to 15).

dir
Type: IO.Interfaces.GPIODirection
GPIO pin data direction.

state **(Optional)**
Type: SystemBoolean
Initial GPIO output state.

Return Value

Type: Pin
GPIO pin object.

See Also

Reference

Device Class

IO.Devices.MCP23S17 Namespace

Device Fields

The Device type exposes the following members.

Fields

	Name	Description
	MaxChannel	Maximum I/O channel number.
	MinChannel	Minimum I/O channel number.
	SPI_Frequency	SPI maximum clock frequency in Hz.
	SPI_Mode	SPI transfer mode.
	SPI_WordSize	SPI transaction word size.

Top

See Also

Reference

Device Class

IO.Devices.MCP23S17 Namespace

DeviceMaxChannel Field

Maximum I/O channel number.

Namespace: IO.Devices.MCP23S17
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const int MaxChannel = 15
```

Field Value

Type: Int32

See Also

Reference

Device Class
IO.Devices.MCP23S17 Namespace

DeviceMinChannel Field

Minimum I/O channel number.

Namespace: IO.Devices.MCP23S17
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const int MinChannel = 0
```

Field Value

Type: Int32

See Also

Reference

Device Class
IO.Devices.MCP23S17 Namespace

DeviceSPI_Frequency Field

SPI maximum clock frequency in Hz.

Namespace: IO.Devices.MCP23S17
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const int SPI_Frequency = 10000000
```

Field Value

Type: Int32

Remarks

Guaranteed only for 2.7V to 5.5V and -40°C to +85°C.

See Also

Reference

Device Class
IO.Devices.MCP23S17 Namespace

DeviceSPI_Mode Field

SPI transfer mode.

Namespace: IO.Devices.MCP23S17
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const int SPI_Mode = 0
```

Field Value

Type: Int32

See Also

Reference

Device Class
IO.Devices.MCP23S17 Namespace

DeviceSPI_WordSize Field

SPI transaction word size.

Namespace: IO.Devices.MCP23S17
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const int SPI_WordSize = 8
```

Field Value

Type: Int32

See Also

Reference

Device Class
IO.Devices.MCP23S17 Namespace

IO.Devices.MCP23S17.GPIO Namespace

MCP23S17 SPI GPIO Expander GPIO Pin Services.

Classes

	Class	Description
	Pin	Encapsulates MCP23S17 GPIO pins.

Pin Class

Encapsulates MCP23S17 GPIO pins.

Inheritance Hierarchy

SystemObject IO.Devices.MCP23S17.GPIOPin

Namespace: IO.Devices.MCP23S17.GPIO
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class Pin : Pin
```

The Pin type exposes the following members.

Constructors

	Name	Description
	Pin	Create a single MCP23S17 GPIO pin.

Top

Properties

	Name	Description
	state	Read/Write GPIO state property.

Top

See Also

Reference

IO.Devices.MCP23S17.GPIO Namespace

Pin Constructor

Create a single MCP23S17 GPIO pin.

Namespace: IO.Devices.MCP23S17.GPIO
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Pin(
        Device dev,
        int channel,
        Direction dir,
        bool state = false
)
```

Parameters

dev
Type: IO.Devices.MCP23S17Device
MCP23S17 device object.

channel
Type: SystemInt32
MCP23S17 I/O channel number.

dir
Type: IO.Interfaces.GPIODirection
GPIO pin data direction.

state **(Optional)**
Type: SystemBoolean
Initial GPIO output state.

See Also

Reference

Pin Class

IO.Devices.MCP23S17.GPIO Namespace

Pin Properties

The Pin type exposes the following members.

Properties

	Name	Description
	state	Read/Write GPIO state property.

Top

See Also

Reference

Pin Class

IO.Devices.MCP23S17.GPIO Namespace

Pinstate Property

Read/Write GPIO state property.

Namespace: IO.Devices.MCP23S17.GPIO
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public bool state { get; set; }
```

Property Value

Type: Boolean

Implements

Pinstate

See Also

Reference

Pin Class
IO.Devices.MCP23S17.GPIO Namespace

IO.Devices.PCA8574 Namespace

PCA8574 (and similar) I^2C GPIO Expander Device Services

Classes

	Class	Description
	Device	Encapsulates PCA8574 (and similar) I^2C GPIO Expanders.

Device Class

Encapsulates PCA8574 (and similar) I^{2}C GPIO Expanders.

Inheritance Hierarchy

SystemObject IO.Devices.PCA8574Device

Namespace: IO.Devices.PCA8574
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class Device
```

The Device type exposes the following members.

Constructors

	Name	Description
	Device	Constructor for a PCA8574 (or similar) GPIO Expander.

Top

Properties

	Name	Description
	Latch	This read-only property returns the last

value written to the output latch.

Top

Methods

	Name	Description
	Read	Return actual state of the GPIO pins.
	Write	Write all GPIO pins.

Top

Fields

	Name	Description
S	MAX_PINS	The number of available GPIO pins per chip.

Top

See Also

Reference

IO.Devices.PCA8574 Namespace

Device Constructor

Constructor for a PCA8574 (or similar) GPIO Expander.

Namespace: IO.Devices.PCA8574
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Device(
        Bus bus,
        int addr,
        byte states = 255
)
```

Parameters

bus
Type: IO.Interfaces.I2CBus
I^2C bus controller.

addr
Type: SystemInt32
I^2C slave address.

states **(Optional)**
Type: SystemByte
Initial output states.

See Also

Reference

Device Class
IO.Devices.PCA8574 Namespace

Device Properties

The Device type exposes the following members.

Properties

	Name	Description
	Latch	This read-only property returns the last value written to the output latch.

Top

See Also

Reference

Device Class

IO.Devices.PCA8574 Namespace

DeviceLatch Property

This read-only property returns the last value written to the output latch.

Namespace: IO.Devices.PCA8574
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public byte Latch { get; }
```

Property Value

Type: Byte

See Also

Reference

Device Class
IO.Devices.PCA8574 Namespace

Device Methods

The Device type exposes the following members.

Methods

	Name	Description
	Read	Return actual state of the GPIO pins.
	Write	Write all GPIO pins.

Top

See Also

Reference

Device Class

IO.Devices.PCA8574 Namespace

DeviceRead Method

Return actual state of the GPIO pins.

Namespace: IO.Devices.PCA8574
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public byte Read()
```

Return Value

Type: Byte
Pin states (MSB = GPIO7).

See Also

Reference

Device Class
IO.Devices.PCA8574 Namespace

DeviceWrite Method

Write all GPIO pins.

Namespace: IO.Devices.PCA8574
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# **VB** **F#** Copy

```
public void Write(
        byte data
)
```

Parameters

data
Type: SystemByte
Data to write to pins (MSB = GPIO7).

See Also

Reference

Device Class
IO.Devices.PCA8574 Namespace

Device Fields

The Device type exposes the following members.

Fields

	Name	Description
	MAX_PINS	The number of available GPIO pins per chip.

Top

See Also

Reference

Device Class

IO.Devices.PCA8574 Namespace

DeviceMAX_PINS Field

The number of available GPIO pins per chip.

Namespace: IO.Devices.PCA8574
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const int MAX_PINS = 8
```

Field Value

Type: Int32

See Also

Reference

Device Class
IO.Devices.PCA8574 Namespace

IO.Devices.PCA8574.GPIO Namespace

PCA8574 (and similar) I^2C GPIO Expander GPIO Pin Services

Classes

	Class	Description
	Pin	Encapsulates PCA8574 (and similar) I^2C GPIO Expander pins.

Pin Class

Encapsulates PCA8574 (and similar) I^{2}C GPIO Expander pins.

Inheritance Hierarchy

SystemObject IO.Devices.PCA8574.GPIOPin

Namespace: IO.Devices.PCA8574.GPIO
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class Pin : Pin
```

The Pin type exposes the following members.

Constructors

	Name	Description
	Pin	Constructor for a single GPIO pin.

Top

Properties

	Name	Description
	state	Read/Write GPIO state property.

Top

See Also

Reference

IO.Devices.PCA8574.GPIO Namespace

Pin Constructor

Constructor for a single GPIO pin.

Namespace: IO.Devices.PCA8574.GPIO
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Pin(
        Device dev,
        int num,
        Direction dir,
        bool state = false
)
```

Parameters

dev
Type: IO.Devices.PCA8574Device
PCA8574 (or similar) device.

num
Type: SystemInt32
GPIO pin number.

dir
Type: IO.Interfaces.GPIODirection
Data direction.

state **(Optional)**
Type: SystemBoolean
Initial GPIO output state.

See Also

Reference

Pin Class

IO.Devices.PCA8574.GPIO Namespace

Pin Properties

The Pin type exposes the following members.

Properties

	Name	Description
	state	Read/Write GPIO state property.

Top

See Also

Reference

Pin Class

IO.Devices.PCA8574.GPIO Namespace

Pinstate Property

Read/Write GPIO state property.

Namespace: IO.Devices.PCA8574.GPIO
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public bool state { get; set; }
```

Property Value

Type: Boolean

Implements

Pinstate

See Also

Reference

Pin Class
IO.Devices.PCA8574.GPIO Namespace

IO.Devices.PCA9534 Namespace

PCA9534 (and similar) I^2C GPIO Expander Device Services

Classes

	Class	Description
	Device	Encapsulates PCA9534 (and similar) I^2C GPIO Expanders.

Device Class

Encapsulates PCA9534 (and similar) I^{2}C GPIO Expanders.

Inheritance Hierarchy

SystemObject IO.Devices.PCA9534Device

Namespace: IO.Devices.PCA9534
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class Device
```

The Device type exposes the following members.

Constructors

	Name	Description
	Device	Constructor for a PCA9534 (or similar) GPIO Expander.

Top

Properties

	Name	Description
	Config	This read-only property returns the last

		value written to the configuration register.
	Latch	This read-only property returns the last value written to the output port register.

Top

Methods

	Name	Description
	Read	Return actual state of the GPIO pins.
	Read(Byte)	Read from the specified PCA9534 device register.
	Write(Byte)	Write all GPIO pins.
	Write(Byte, Byte)	Write to the specified PCA9534 device register.

Top

Fields

	Name	Description
S	AllInputs	Configure all pins as inputs.
S	AllNormal	Configure all inputs as normal polarity.
S	AllOff	Turn all outputs off.
S	AllOutputs	Configure all pins as outputs.

S	ConfigurationReg	Configuration Register address.
S	InputPolarityReg	Input Port Polarity Register address.
S	InputPortReg	Input Port Register address.
S	MAX_PINS	The number of available GPIO pins per chip.
S	OutputPortReg	Output Port Register address.

Top

See Also

Reference

IO.Devices.PCA9534 Namespace

Device Constructor

Constructor for a PCA9534 (or similar) GPIO Expander.

Namespace: IO.Devices.PCA9534
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Device(
        Bus bus,
        int addr,
        byte config = 255,
        byte states = 0
)
```

Parameters

bus
Type: IO.Interfaces.I2CBus
I^2C bus controller.

addr
Type: SystemInt32
I^2C slave address.

config **(Optional)**
Type: SystemByte
GPIO pin configuration.

states **(Optional)**
Type: SystemByte
Initial output states.

See Also

Reference

Device Class

IO.Devices.PCA9534 Namespace

Device Properties

The Device type exposes the following members.

Properties

	Name	Description
	Config	This read-only property returns the last value written to the configuration register.
	Latch	This read-only property returns the last value written to the output port register.

Top

See Also

Reference

Device Class

IO.Devices.PCA9534 Namespace

DeviceConfig Property

This read-only property returns the last value written to the configuration register.

Namespace: IO.Devices.PCA9534
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public byte Config { get; }
```

Property Value

Type: Byte

See Also

Reference

Device Class
IO.Devices.PCA9534 Namespace

DeviceLatch Property

This read-only property returns the last value written to the output port register.

Namespace: IO.Devices.PCA9534
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public byte Latch { get; }
```

Property Value

Type: Byte

See Also

Reference

Device Class
IO.Devices.PCA9534 Namespace

Device Methods

Methods

	Name	Description
	Read	Return actual state of the GPIO pins.
	Read(Byte)	Read from the specified PCA9534 device register.
	Write(Byte)	Write all GPIO pins.
	Write(Byte, Byte)	Write to the specified PCA9534 device register.

Top

See Also

Reference

Device Class

IO.Devices.PCA9534 Namespace

DeviceRead Method

Overload List

	Name	Description
	Read	Return actual state of the GPIO pins.
	Read(Byte)	Read from the specified PCA9534 device register.

Top

See Also

Reference

Device Class

IO.Devices.PCA9534 Namespace

DeviceRead Method

Return actual state of the GPIO pins.

Namespace: IO.Devices.PCA9534
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public byte Read()
```

Return Value

Type: Byte
Pin states (MSB = GPIO7).

See Also

Reference

Device Class
Read Overload
IO.Devices.PCA9534 Namespace

DeviceRead Method (Byte)

Read from the specified PCA9534 device register.

Namespace: IO.Devices.PCA9534
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public byte Read(
        byte addr
)
```

Parameters

addr
Type: SystemByte
Register address.

Return Value

Type: Byte
Register contents.

See Also

Reference

Device Class
Read Overload
IO.Devices.PCA9534 Namespace

DeviceWrite Method

Overload List

	Name	Description
	Write(Byte)	Write all GPIO pins.
	Write(Byte, Byte)	Write to the specified PCA9534 device register.

Top

See Also

Reference

Device Class

IO.Devices.PCA9534 Namespace

DeviceWrite Method (Byte)

Write all GPIO pins.

Namespace: IO.Devices.PCA9534
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# **VB** **F#** Copy

```
public void Write(
        byte data
)
```

Parameters

data
Type: SystemByte
Data to write to pins (MSB = GPIO7).

See Also

Reference

Device Class
Write Overload
IO.Devices.PCA9534 Namespace

DeviceWrite Method (Byte, Byte)

Write to the specified PCA9534 device register.

Namespace: IO.Devices.PCA9534
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public void Write(
        byte addr,
        byte data
)
```

Parameters

addr
Type: SystemByte
Register address.

data
Type: SystemByte
Data to written.

See Also

Reference

Device Class
Write Overload
IO.Devices.PCA9534 Namespace

Device Fields

The Device type exposes the following members.

Fields

	Name	Description
	AllInputs	Configure all pins as inputs.
	AllNormal	Configure all inputs as normal polarity.
	AllOff	Turn all outputs off.
	AllOutputs	Configure all pins as outputs.
	ConfigurationReg	Configuration Register address.
	InputPolarityReg	Input Port Polarity Register address.
	InputPortReg	Input Port Register address.
	MAX_PINS	The number of available GPIO pins per chip.
	OutputPortReg	Output Port Register address.

Top

See Also

Reference

Device Class

IO.Devices.PCA9534 Namespace

DeviceAllInputs Field

Configure all pins as inputs.

Namespace: IO.Devices.PCA9534
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const byte AllInputs = 255
```

Field Value

Type: Byte

See Also

Reference

Device Class
IO.Devices.PCA9534 Namespace

DeviceAllNormal Field

Configure all inputs as normal polarity.

Namespace: IO.Devices.PCA9534
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const byte AllNormal = 0
```

Field Value

Type: Byte

See Also

Reference

Device Class
IO.Devices.PCA9534 Namespace

DeviceAllOff Field

Turn all outputs off.

Namespace: IO.Devices.PCA9534
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const byte AllOff = 0
```

Field Value

Type: Byte

See Also

Reference

Device Class
IO.Devices.PCA9534 Namespace

DeviceAllOutputs Field

Configure all pins as outputs.

Namespace: IO.Devices.PCA9534
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const byte AllOutputs = 0
```

Field Value

Type: Byte

See Also

Reference

Device Class
IO.Devices.PCA9534 Namespace

DeviceConfigurationReg Field

Configuration Register address.

Namespace: IO.Devices.PCA9534
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const byte ConfigurationReg = 3
```

Field Value

Type: Byte

See Also

Reference

Device Class
IO.Devices.PCA9534 Namespace

DeviceInputPolarityReg Field

Input Port Polarity Register address.

Namespace: IO.Devices.PCA9534
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const byte InputPolarityReg = 2
```

Field Value

Type: Byte

See Also

Reference

Device Class
IO.Devices.PCA9534 Namespace

DeviceInputPortReg Field

Input Port Register address.

Namespace: IO.Devices.PCA9534
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const byte InputPortReg = 0
```

Field Value

Type: Byte

See Also

Reference

Device Class
IO.Devices.PCA9534 Namespace

DeviceMAX_PINS Field

The number of available GPIO pins per chip.

Namespace: IO.Devices.PCA9534
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const int MAX_PINS = 8
```

Field Value

Type: Int32

See Also

Reference

Device Class
IO.Devices.PCA9534 Namespace

DeviceOutputPortReg Field

Output Port Register address.

Namespace: IO.Devices.PCA9534
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const byte OutputPortReg = 1
```

Field Value

Type: Byte

See Also

Reference

Device Class
IO.Devices.PCA9534 Namespace

IO.Devices.PCA9534.GPIO Namespace

PCA9534 (and similar) I^2C GPIO Expander GPIO Pin Services

Classes

	Class	Description
	Pin	Encapsulates PCA9534 (and similar) I^2C GPIO Expander pins.

Pin Class

Encapsulates PCA9534 (and similar) I^{2}C GPIO Expander pins.

Inheritance Hierarchy

SystemObject IO.Devices.PCA9534.GPIOPin

Namespace: IO.Devices.PCA9534.GPIO
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class Pin : Pin
```

The Pin type exposes the following members.

Constructors

	Name	Description
	Pin	Constructor for a single GPIO pin.

Top

Properties

	Name	Description
	state	Read/Write GPIO state property.

Top

See Also

Reference

IO.Devices.PCA9534.GPIO Namespace

Pin Constructor

Constructor for a single GPIO pin.

Namespace: IO.Devices.PCA9534.GPIO
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Pin(
        Device dev,
        int num,
        Direction dir,
        bool state = false
)
```

Parameters

dev
Type: IO.Devices.PCA9534Device
PCA9534 (or similar) device.

num
Type: SystemInt32
GPIO pin number.

dir
Type: IO.Interfaces.GPIODirection
Data direction.

state **(Optional)**
Type: SystemBoolean
Initial GPIO output state.

See Also

Reference

Pin Class

IO.Devices.PCA9534.GPIO Namespace

Pin Properties

The Pin type exposes the following members.

Properties

	Name	Description
	state	Read/Write GPIO state property.

Top

See Also

Reference

Pin Class

IO.Devices.PCA9534.GPIO Namespace

Pinstate Property

Read/Write GPIO state property.

Namespace: IO.Devices.PCA9534.GPIO
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public bool state { get; set; }
```

Property Value

Type: Boolean

Implements

Pinstate

See Also

Reference

Pin Class
IO.Devices.PCA9534.GPIO Namespace

IO.Devices.PCA9685 Namespace

PCA9685 I^{2}C PWM Controller Device Services

Classes

	Class	Description
	Device	Encapsulates the PCA9685 I^{2}C PWM Controller.

Device Class

Encapsulates the PCA9685 I^{2}C PWM Controller.

Inheritance Hierarchy

SystemObject IO.Devices.PCA9685Device

Namespace: IO.Devices.PCA9685
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class Device
```

The Device type exposes the following members.

Constructors

	Name	Description
	Device	Constructor for a single PCA9685 device.

Top

Properties

	Name	Description
	Frequency	Read-only property returning the configured PWM pulse frequency.

Top

Methods

	Name	Description
	ReadChannel	Read PCA9685 output channel data.
	WriteChannel	Write PCA9685 output channel data.

Top

Fields

	Name	Description
S	INTERNAL_CLOCK	Select internal 25 MHz clock oscillator.
S	MAX_CHANNEL	Maximum PCA9685 output channel number.
S	MAX_CLOCK	Maximum clock frequency.
S	MIN_CHANNEL	Minimum PCA9685 output channel number.
S	MIN_CLOCK	Minimum clock frequency.

Top

See Also

Reference

IO.Devices.PCA9685 Namespace

Device Constructor

Constructor for a single PCA9685 device.

Namespace: IO.Devices.PCA9685
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Device(
        Bus bus,
        int addr,
        int freq = 50,
        int clock = 0
)
```

Parameters

bus
Type: IO.Interfaces.I2CBus
I²C bus controller object.

addr
Type: SystemInt32
I²C slave address.

freq **(Optional)**
Type: SystemInt32
PWM pulse frequency. Default is 50 Hz.

clock **(Optional)**
Type: SystemInt32
PCA9685 clock source. Use `INTERNAL_CLOCK`c> to select the

internal 25 MHz clock generator.

See Also

Reference

Device Class

IO.Devices.PCA9685 Namespace

Device Properties

The Device type exposes the following members.

Properties

	Name	Description
	Frequency	Read-only property returning the configured PWM pulse frequency.

Top

See Also

Reference

Device Class

IO.Devices.PCA9685 Namespace

DeviceFrequency Property

Read-only property returning the configured PWM pulse frequency.

Namespace: IO.Devices.PCA9685
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public int Frequency { get; }
```

Property Value

Type: Int32

See Also

Reference

Device Class
IO.Devices.PCA9685 Namespace

Device Methods

The Device type exposes the following members.

Methods

	Name	Description
	ReadChannel	Read PCA9685 output channel data.
	WriteChannel	Write PCA9685 output channel data.

Top

See Also

Reference

Device Class

IO.Devices.PCA9685 Namespace

DeviceReadChannel Method

Read PCA9685 output channel data.

Namespace: IO.Devices.PCA9685
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public void ReadChannel(
        byte channel,
        ref byte[] data
)
```

Parameters

channel
Type: SystemByte
Output channel number.

data
Type: SystemByte
Output channel data (4 bytes).

See Also

Reference

Device Class
IO.Devices.PCA9685 Namespace

DeviceWriteChannel Method

Write PCA9685 output channel data.

Namespace: IO.Devices.PCA9685
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public void WriteChannel(
        byte channel,
        byte[] data
)
```

Parameters

channel
Type: SystemByte
Output channel number.

data
Type: SystemByte
Output channel data.

See Also

Reference

Device Class
IO.Devices.PCA9685 Namespace

Device Fields

The Device type exposes the following members.

Fields

	Name	Description
	INTERNAL_CLOCK	Select internal 25 MHz clock oscillator.
	MAX_CHANNEL	Maximum PCA9685 output channel number.
	MAX_CLOCK	Maximum clock frequency.
	MIN_CHANNEL	Minimum PCA9685 output channel number.
	MIN_CLOCK	Minimum clock frequency.

Top

See Also

Reference

Device Class

IO.Devices.PCA9685 Namespace

DeviceINTERNAL_CLOCK Field

Select internal 25 MHz clock oscillator.

Namespace: IO.Devices.PCA9685
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const int INTERNAL_CLOCK = 0
```

Field Value

Type: Int32

See Also

Reference

Device Class
IO.Devices.PCA9685 Namespace

DeviceMAX_CHANNEL Field

Maximum PCA9685 output channel number.

Namespace: IO.Devices.PCA9685
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const int MAX_CHANNEL = 15
```

Field Value

Type: Int32

See Also

Reference

Device Class
IO.Devices.PCA9685 Namespace

DeviceMAX_CLOCK Field

Maximum clock frequency.

Namespace: IO.Devices.PCA9685
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const int MAX_CLOCK = 50000000
```

Field Value

Type: Int32

See Also

Reference

Device Class
IO.Devices.PCA9685 Namespace

DeviceMIN_CHANNEL Field

Minimum PCA9685 output channel number.

Namespace: IO.Devices.PCA9685
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const int MIN_CHANNEL = 0
```

Field Value

Type: Int32

See Also

Reference

Device Class
IO.Devices.PCA9685 Namespace

DeviceMIN_CLOCK Field

Minimum clock frequency.

Namespace: IO.Devices.PCA9685
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const int MIN_CLOCK = 1
```

Field Value

Type: Int32

See Also

Reference

Device Class
IO.Devices.PCA9685 Namespace

IO.Devices.PCA9685.GPIO Namespace

PCA9685 I^{2}C PWM Controller GPIO Pin Services

Classes

	Class	Description
	Pin	Encapsulates PCA9685 GPIO outputs.

Pin Class

Encapsulates PCA9685 GPIO outputs.

Inheritance Hierarchy

SystemObject IO.Devices.PCA9685.GPIOPin

Namespace: IO.Devices.PCA9685.GPIO
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class Pin : Pin
```

The Pin type exposes the following members.

Constructors

	Name	Description
	Pin	Constructor for a single GPIO output pin.

Top

Properties

	Name	Description
	state	Read/Write GPIO output state property.

Top

See Also

Reference

IO.Devices.PCA9685.GPIO Namespace

Pin Constructor

Constructor for a single GPIO output pin.

Namespace: IO.Devices.PCA9685.GPIO
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Pin(
        Device dev,
        int channel,
        bool state = false
)
```

Parameters

dev
Type: IO.Devices.PCA9685Device
PCA9685 device object.

channel
Type: SystemInt32
Output channel number.

state **(Optional)**
Type: SystemBoolean
Initial GPIO output state.

See Also

Reference

Pin Class

IO.Devices.PCA9685.GPIO Namespace

Pin Properties

The Pin type exposes the following members.

Properties

	Name	Description
	state	Read/Write GPIO output state property.

Top

See Also

Reference

Pin Class

IO.Devices.PCA9685.GPIO Namespace

Pinstate Property

Read/Write GPIO output state property.

Namespace: IO.Devices.PCA9685.GPIO
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public bool state { get; set; }
```

Property Value

Type: Boolean

Implements

Pinstate

See Also

Reference

Pin Class
IO.Devices.PCA9685.GPIO Namespace

IO.Devices.PCA9685.PWM Namespace

PCA9685 I^{2}C PWM Controller PWM Output Services

Classes

	Class	Description
	Output	Encapsulates PCA9685 PWM outputs.

Output Class

Encapsulates PCA9685 PWM outputs.

Inheritance Hierarchy

SystemObject IO.Devices.PCA9685.PWMOutput

Namespace: IO.Devices.PCA9685.PWM
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class Output : Output
```

The Output type exposes the following members.

Constructors

	Name	Description
	Output	Constructor for a single PWM output.

Top

Properties

	Name	Description
	dutycycle	Write-only property for setting the PWM output duty cycle. Allowed values

are 0.0 to 100.0 percent.

Top

See Also

Reference

IO.Devices.PCA9685.PWM Namespace

Output Constructor

Constructor for a single PWM output.

Namespace: IO.Devices.PCA9685.PWM
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Output(
        Device dev,
        int channel,
        double dutycycle = 0
)
```

Parameters

dev
Type: IO.Devices.PCA9685Device
PCA9685 device object.

channel
Type: SystemInt32
Output channel number.

dutycycle **(Optional)**
Type: SystemDouble
Initial PWM output duty cycle.

See Also

Reference

Output Class

IO.Devices.PCA9685.PWM Namespace

Output Properties

The Output type exposes the following members.

Properties

	Name	Description
	dutycycle	Write-only property for setting the PWM output duty cycle. Allowed values are 0.0 to 100.0 percent.

Top

See Also

Reference

Output Class
IO.Devices.PCA9685.PWM Namespace

Outputdutycycle Property

Write-only property for setting the PWM output duty cycle. Allowed values are 0.0 to 100.0 percent.

Namespace: IO.Devices.PCA9685.PWM
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public double dutycycle { set; }
```

Property Value

Type: Double

Implements

Outputdutycycle

See Also

Reference

Output Class
IO.Devices.PCA9685.PWM Namespace

IO.Devices.PCA9685.Servo Namespace

PCA9685 I^{2}C PWM Controller Servo Output Services

Classes

	Class	Description
	Output	Encapsulates PCA9685 servo outputs.

Output Class

Encapsulates PCA9685 servo outputs.

Inheritance Hierarchy

SystemObject IO.Devices.PCA9685.ServoOutput

Namespace: IO.Devices.PCA9685.Servo
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class Output : Output
```

The Output type exposes the following members.

Constructors

	Name	Description
	Output	Constructor for a single servo output.

Top

Properties

	Name	Description
	position	Write-only property for setting the normalized servo position. Allowed

values are -0.0 to+1.0.

Top

See Also

Reference

IO.Devices.PCA9685.Servo Namespace

Output Constructor

Constructor for a single servo output.

Namespace: IO.Devices.PCA9685.Servo
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Output(
        Device dev,
        int channel,
        double position = 0
)
```

Parameters

dev
Type: IO.Devices.PCA9685Device
PCA9685 device object.

channel
Type: SystemInt32
Output channel number.

position **(Optional)**
Type: SystemDouble
Initial servo position.

See Also

Reference

Output Class

IO.Devices.PCA9685.Servo Namespace

Output Properties

The Output type exposes the following members.

Properties

	Name	Description
	position	Write-only property for setting the normalized servo position. Allowed values are -0.0 to+1.0.

Top

See Also

Reference

Output Class
IO.Devices.PCA9685.Servo Namespace

Outputposition Property

Write-only property for setting the normalized servo position. Allowed values are -0.0 to+1.0.

Namespace: IO.Devices.PCA9685.Servo
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public double position { set; }
```

Property Value

Type: Double

Implements

Outputposition

See Also

Reference

Output Class
IO.Devices.PCA9685.Servo Namespace

IO.Devices.Pmod.HYGRO Namespace

Digilent Pmod HYGRO Temperature and Humdity Sensor (HDC1080) Services.

Classes

	Class	Description
	Device	Encapsulate the Digilent Pmod HYGRO Temperature and Humidity Sensor (HDC1080).

Device Class

Encapsulate the Digilent Pmod HYGRO Temperature and Humidity Sensor (HDC1080).

Inheritance Hierarchy

SystemObject IO.Devices.HDC1080Device
IO.Devices.Pmod.HYGRODevice

Namespace: IO.Devices.Pmod.HYGRO
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# **VB** **F#** Copy

```
public class Device : Device
```

The Device type exposes the following members.

Constructors

	Name	Description
	Device	Constructor for a Digilent Pmod HYGRO Temperature and Humidity Sensor (HDC1080).

Top

Properties

	Name	Description
	Celsius	Read-only property returning the temperature in degrees Celsius. (Inherited from Device.)
	DeviceID	Read-only property returning the device ID. (Inherited from Device.)
	Fahrenheit	Read-only property returning the temperature in degrees Fahrenheit. (Inherited from Device.)
	Humidity	Read-only property returning the percentage relative humidity. (Inherited from Device.)
	Kelvins	Read-only property returning the temperature in Kelvins. (Inherited from Device.)
	ManufacturerID	Read-only property returning the manufacturer ID. (Inherited from Device.)

Top

Methods

	Name	Description
	Read	Read from an HDC1080 device register. (Inherited from Device.)

	Write	Write to an HDC1080 device register. (Inherited from Device.)

Top

See Also

Reference

IO.Devices.Pmod.HYGRO Namespace

Device Constructor

Constructor for a Digilent Pmod HYGRO Temperature and Humidity Sensor (HDC1080).

Namespace: IO.Devices.Pmod.HYGRO
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# **VB** **F#** Copy

```
public Device(
        Bus bus
)
```

Parameters

bus
Type: IO.Interfaces.I2CBus
I^2 bus object.

See Also

Reference

Device Class
IO.Devices.Pmod.HYGRO Namespace

Device Properties

The Device type exposes the following members.

Properties

	Name	Description
	Celsius	Read-only property returning the temperature in degrees Celsius. (Inherited from Device.)
	DeviceID	Read-only property returning the device ID. (Inherited from Device.)
	Fahrenheit	Read-only property returning the temperature in degrees Fahrenheit. (Inherited from Device.)
	Humidity	Read-only property returning the percentage relative humidity. (Inherited from Device.)
	Kelvins	Read-only property returning the temperature in Kelvins. (Inherited from Device.)
	ManufacturerID	Read-only property returning the manufacturer ID.

(Inherited from Device.)

Top

See Also

Reference

Device Class

IO.Devices.Pmod.HYGRO Namespace

Device Methods

The Device type exposes the following members.

Methods

	Name	Description
	Read	Read from an HDC1080 device register. (Inherited from Device.)
	Write	Write to an HDC1080 device register. (Inherited from Device.)

Top

See Also

Reference

Device Class

IO.Devices.Pmod.HYGRO Namespace

IO.Devices.SN74HC595 Namespace

SN74HC595 8-Bit Shift Register Device Services

Classes

	Class	Description
	Device	Encapsulates a chain of one or more SN74HC595 8-bit shift registers.

Device Class

Encapsulates a chain of one or more SN74HC595 8-bit shift registers.

Inheritance Hierarchy

SystemObject IO.Devices.SN74HC595Device

Namespace: IO.Devices.SN74HC595
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class Device
```

The Device type exposes the following members.

Constructors

	Name	Description
	Device	Constructor for a chain of one or more SN74HC595 shift registers.

Top

Properties

	Name	Description
	Length	Read-only property returning the

		number of stages in the chain.
	state	Read/Write shift register chain state property.

Top

Methods

	Name	Description
	ClrBit	Clear a single bit in the shift register chain.
	ReadBit	Read a single bit in the shift register chain.
	SetBit	Set a single bit in the shift register chain.

Top

Fields

	Name	Description
S	SPI_MaxFreq	SPI maximum clock frequency for the SNHC74HC595 shift register. (Most pessimistic datasheet limit at 2V.)
S	SPI_Mode	SPI clock mode for the SNHC74HC595 shift register.

Top

See Also

Reference

IO.Devices.SN74HC595 Namespace

Device Constructor

Constructor for a chain of one or more SN74HC595 shift registers.

Namespace: IO.Devices.SN74HC595
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Device(
        Device dev,
        int stages = 1,
        byte[] initialstate = null
)
```

Parameters

dev
Type: IO.Interfaces.SPIDevice
SPI device object.

stages **(Optional)**
Type: SystemInt32
Number of stages in the chain.

initialstate **(Optional)**
Type: SystemByte
Initial shift register chain state.

See Also

Reference

Device Class

IO.Devices.SN74HC595 Namespace

Device Properties

The Device type exposes the following members.

Properties

	Name	Description
	Length	Read-only property returning the number of stages in the chain.
	state	Read/Write shift register chain state property.

Top

See Also

Reference

Device Class

IO.Devices.SN74HC595 Namespace

DeviceLength Property

Read-only property returning the number of stages in the chain.

Namespace: IO.Devices.SN74HC595
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public int Length { get; }
```

Property Value

Type: Int32

See Also

Reference

Device Class
IO.Devices.SN74HC595 Namespace

Devicestate Property

Read/Write shift register chain state property.

Namespace: IO.Devices.SN74HC595
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public byte[] state { get; set; }
```

Property Value

Type: Byte

See Also

Reference

Device Class
IO.Devices.SN74HC595 Namespace

Device Methods

The Device type exposes the following members.

Methods

	Name	Description
	ClrBit	Clear a single bit in the shift register chain.
	ReadBit	Read a single bit in the shift register chain.
	SetBit	Set a single bit in the shift register chain.

Top

See Also

Reference

Device Class

IO.Devices.SN74HC595 Namespace

DeviceClrBit Method

Clear a single bit in the shift register chain.

Namespace: IO.Devices.SN74HC595
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public void ClrBit(
        int index,
        byte mask
)
```

Parameters

index
Type: SystemInt32
Shift register stage number. Zero indicates the first register stage.

mask
Type: SystemByte
Shift register bit mask.

See Also

Reference

Device Class
IO.Devices.SN74HC595 Namespace

DeviceReadBit Method

Read a single bit in the shift register chain.

Namespace: IO.Devices.SN74HC595
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public bool ReadBit(
        int index,
        byte mask
)
```

Parameters

index
Type: SystemInt32
Shift register stage number. Zero indicates the first register stage.

mask
Type: SystemByte
Shift register bit mask.

Return Value

Type: Boolean
Boolean bit value.

See Also

Reference

Device Class

IO.Devices.SN74HC595 Namespace

DeviceSetBit Method

Set a single bit in the shift register chain.

Namespace: IO.Devices.SN74HC595
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public void SetBit(
        int index,
        byte mask
)
```

Parameters

index
Type: SystemInt32
Shift register stage number. Zero indicates the first register stage.

mask
Type: SystemByte
Shift register bit mask.

See Also

Reference

Device Class
IO.Devices.SN74HC595 Namespace

Device Fields

The Device type exposes the following members.

Fields

	Name	Description
	SPI_MaxFreq	SPI maximum clock frequency for the SNHC74HC595 shift register. (Most pessimistic datasheet limit at 2V.)
	SPI_Mode	SPI clock mode for the SNHC74HC595 shift register.

Top

See Also

Reference

Device Class

IO.Devices.SN74HC595 Namespace

DeviceSPI_MaxFreq Field

SPI maximum clock frequency for the SNHC74HC595 shift register. (Most pessimistic datasheet limit at 2V.)

Namespace: IO.Devices.SN74HC595
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const int SPI_MaxFreq = 4000000
```

Field Value

Type: Int32

See Also

Reference

Device Class
IO.Devices.SN74HC595 Namespace

DeviceSPI_Mode Field

SPI clock mode for the SNHC74HC595 shift register.

Namespace: IO.Devices.SN74HC595
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const int SPI_Mode = 0
```

Field Value

Type: Int32

See Also

Reference

Device Class
IO.Devices.SN74HC595 Namespace

IO.Devices.SN74HC595.GPIO Namespace

SN74HC595 8-Bit Shift Register GPIO Pin Services

Classes

	Class	Description
	Pin	Encapsulates SN74HC595 GPIO outputs.

Pin Class

Encapsulates SN74HC595 GPIO outputs.

Inheritance Hierarchy

SystemObject IO.Devices.SN74HC595.GPIOPin

Namespace: IO.Devices.SN74HC595.GPIO
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class Pin : Pin
```

The Pin type exposes the following members.

Constructors

	Name	Description
	Pin	Constructor for a single GPIO output pin.

Top

Properties

	Name	Description
	state	Read/Write GPIO pin state property.

Top

See Also

Reference

IO.Devices.SN74HC595.GPIO Namespace

Pin Constructor

Constructor for a single GPIO output pin.

Namespace: IO.Devices.SN74HC595.GPIO
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Pin(
        Device dev,
        int pos,
        bool state = false
)
```

Parameters

dev
Type: IO.Devices.SN74HC595Device
SN74HC595 device object.

pos
Type: SystemInt32
Bit position, numbered left to right. Zero indicates the most significant bit of the first shift register stage.

state **(Optional)**
Type: SystemBoolean
Initial GPIO output state.

See Also

Reference

Pin Class
IO.Devices.SN74HC595.GPIO Namespace

Pin Properties

The Pin type exposes the following members.

Properties

	Name	Description
	state	Read/Write GPIO pin state property.

Top

See Also

Reference

Pin Class

IO.Devices.SN74HC595.GPIO Namespace

Pinstate Property

Read/Write GPIO pin state property.

Namespace: IO.Devices.SN74HC595.GPIO
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public bool state { get; set; }
```

Property Value

Type: Boolean

Implements

Pinstate

See Also

Reference

Pin Class
IO.Devices.SN74HC595.GPIO Namespace

IO.Devices.TH02 Namespace

TH02 I^2C Temperature/Humidity Sensor Services

Classes

	Class	Description
	Device	Encapsulates the TH02 temperature and humidity sensor.

Device Class

Encapsulates the TH02 temperature and humidity sensor.

Inheritance Hierarchy

SystemObject IO.Devices.TH02Device
IO.Devices.Grove.Temperature_HumidityDevice

Namespace: IO.Devices.TH02
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class Device : Sensor, Sensor
```

The Device type exposes the following members.

Constructors

	Name	Description
	Device	Constructor for an TH02 temperature and humidity sensor object.

Top

Properties

	Name	Description

	Celsius	Read-only property returning the temperature in degrees Celsius.
	DeviceID	Read-only property returning the device ID.
	Fahrenheit	Read-only property returning the temperature in degrees Fahrenheit.
	Humidity	Read-only property returning the percentage relative humidity.
	Kelvins	Read-only property returning the temperature in Kelvins.

Top

See Also

Reference

IO.Devices.TH02 Namespace

Device Constructor

Constructor for an TH02 temperature and humidity sensor object.

Namespace: IO.Devices.TH02
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# **VB** **F#** Copy

```
public Device(
        Bus bus
)
```

Parameters

bus
Type: IO.Interfaces.I2CBus
I^2C bus controller.

See Also

Reference

Device Class
IO.Devices.TH02 Namespace

Device Properties

The Device type exposes the following members.

Properties

	Name	Description
	Celsius	Read-only property returning the temperature in degrees Celsius.
	DeviceID	Read-only property returning the device ID.
	Fahrenheit	Read-only property returning the temperature in degrees Fahrenheit.
	Humidity	Read-only property returning the percentage relative humidity.
	Kelvins	Read-only property returning the temperature in Kelvins.

Top

See Also

Reference

Device Class
IO.Devices.TH02 Namespace

DeviceCelsius Property

Read-only property returning the temperature in degrees Celsius.

Namespace: IO.Devices.TH02
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public double Celsius { get; }
```

Property Value

Type: Double

Implements

SensorCelsius

See Also

Reference

Device Class
IO.Devices.TH02 Namespace

DeviceDeviceID Property

Read-only property returning the device ID.

Namespace: IO.Devices.TH02
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public byte DeviceID { get; }
```

Property Value

Type: Byte

See Also

Reference

Device Class
IO.Devices.TH02 Namespace

DeviceFahrenheit Property

Read-only property returning the temperature in degrees Fahrenheit.

Namespace: IO.Devices.TH02
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public double Fahrenheit { get; }
```

Property Value

Type: Double

Implements

SensorFahrenheit

See Also

Reference

Device Class
IO.Devices.TH02 Namespace

DeviceHumidity Property

Read-only property returning the percentage relative humidity.

Namespace: IO.Devices.TH02
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public double Humidity { get; }
```

Property Value

Type: Double

Implements

SensorHumidity

See Also

Reference

Device Class
IO.Devices.TH02 Namespace

DeviceKelvins Property

Read-only property returning the temperature in Kelvins.

Namespace: IO.Devices.TH02
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public double Kelvins { get; }
```

Property Value

Type: Double

Implements

SensorKelvins

See Also

Reference

Device Class
IO.Devices.TH02 Namespace

IO.Devices.Thermistor Namespace

Thermistor Modeling Services

Classes

	Class	Description
	NTC_B	Encapsulate an NTC thermistor.

NTC_B Class

Encapsulate an NTC thermistor.

Inheritance Hierarchy

SystemObject IO.Devices.ThermistorNTC_B

Namespace: IO.Devices.Thermistor
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class NTC_B
```

The NTC_B type exposes the following members.

Constructors

	Name	Description
	NTC_B	Constructor for a single NTC thermistor object instance.

Top

Methods

	Name	Description
	Kelvins	Kelvin temperature as a function of the

thermistor resistance.

Top

See Also

Reference

IO.Devices.Thermistor Namespace

NTC_B Constructor

Constructor for a single NTC thermistor object instance.

Namespace: IO.Devices.Thermistor
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public NTC_B(
        double B,
        double R0,
        double T0 = 298.15
)
```

Parameters

B
Type: SystemDouble
Thermistor B parameter.

R0
Type: SystemDouble
Thermistor resistance in ohms at the specified reference temperature.

T0 **(Optional)**
Type: SystemDouble
Thermistor reference temperature in Kelvins.

See Also

Reference

NTC_B Class
IO.Devices.Thermistor Namespace

NTC_B Methods

The NTC_B type exposes the following members.

Methods

	Name	Description
	Kelvins	Kelvin temperature as a function of the thermistor resistance.

Top

See Also

Reference

NTC_B Class

IO.Devices.Thermistor Namespace

NTC_BKelvins Method

Kelvin temperature as a function of the thermistor resistance.

Namespace: IO.Devices.Thermistor
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public double Kelvins(
        double R
)
```

Parameters

R
Type: SystemDouble
Thermistor resistance in ohms.

Return Value

Type: Double
Temperature in Kelvins.

See Also

Reference

NTC_B Class
IO.Devices.Thermistor Namespace

IO.Devices.USB.Munts Namespace

Vendor and Product Identifiers for Munts Technologies (http://tech.munts.com) USB devices

Classes

	Class	Description
	HID	USB device constants for Munts Technologies USB HID devices.
	Serial	USB device constants for Munts Technologies USB serial port devices.

HID Class

USB device constants for Munts Technologies USB HID devices.

Inheritance Hierarchy

SystemObject IO.Devices.USB.MuntsHID

Namespace: IO.Devices.USB.Munts
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public static class HID
```

The HID type exposes the following members.

Fields

	Name	Description
	Product	Product ID for Munts Technologies USB hid devices.
	Vendor	Vendor ID for Munts Technologies

Top

See Also

Reference

IO.Devices.USB.Munts Namespace

HID Fields

The HID type exposes the following members.

Fields

	Name	Description
	Product	Product ID for Munts Technologies USB hid devices.
	Vendor	Vendor ID for Munts Technologies

Top

See Also

Reference

HID Class

IO.Devices.USB.Munts Namespace

HIDProduct Field

Product ID for Munts Technologies USB hid devices.

Namespace: IO.Devices.USB.Munts
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const int Product = 2810
```

Field Value

Type: Int32

See Also

Reference

HID Class
IO.Devices.USB.Munts Namespace

HIDVendor Field

Vendor ID for Munts Technologies

Namespace: IO.Devices.USB.Munts
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const int Vendor = 5840
```

Field Value

Type: Int32

See Also

Reference

HID Class
IO.Devices.USB.Munts Namespace

Serial Class

USB device constants for Munts Technologies USB serial port devices.

Inheritance Hierarchy

SystemObject IO.Devices.USB.MuntsSerial

Namespace: IO.Devices.USB.Munts
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public static class Serial
```

The Serial type exposes the following members.

Fields

	Name	Description
	Product	Product ID for Munts Technologies USB serial port devices.
	Vendor	Vendor ID for Munts Technologies

Top

See Also

Reference

IO.Devices.USB.Munts Namespace

Serial Fields

The Serial type exposes the following members.

Fields

	Name	Description
	Product	Product ID for Munts Technologies USB serial port devices.
	Vendor	Vendor ID for Munts Technologies

Top

See Also

Reference

Serial Class

IO.Devices.USB.Munts Namespace

SerialProduct Field

Product ID for Munts Technologies USB serial port devices.

Namespace: IO.Devices.USB.Munts
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const int Product = 2811
```

Field Value

Type: Int32

See Also

Reference

Serial Class
IO.Devices.USB.Munts Namespace

SerialVendor Field

Vendor ID for Munts Technologies

Namespace: IO.Devices.USB.Munts
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const int Vendor = 5840
```

Field Value

Type: Int32

See Also

Reference

Serial Class
IO.Devices.USB.Munts Namespace

IO.Interfaces.ADC Namespace

Abstract Interface for ADC (Analog to Digital Converter) Inputs

Classes

	Class	Description
	Input	Encapsulates ADC voltage inputs.

Interfaces

	Interface	Description
	Sample	Abstract interface for ADC inputs returning an integer sample value.
	Voltage	Abstract interface for ADC inputs returning a floating point voltage value.

Input Class

Encapsulates ADC voltage inputs.

Inheritance Hierarchy

SystemObject IO.Interfaces.ADCInput

Namespace: IO.Interfaces.ADC
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class Input : Voltage
```

The Input type exposes the following members.

Constructors

	Name	Description
	Input	Create an ADC voltage input.

Top

Properties

	Name	Description
	voltage	Read-only property returning the analog input voltage.

Top

See Also

Reference

IO.Interfaces.ADC Namespace

Input Constructor

Create an ADC voltage input.

Namespace: IO.Interfaces.ADC
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Input(
        Sample input,
        double reference,
        double gain = 1
)
```

Parameters

input
Type: IO.Interfaces.ADCSample
ADC sample object.

reference
Type: SystemDouble
ADC reference in volts.

gain **(Optional)**
Type: SystemDouble
ADC input gain in volts per volt.

See Also

Reference

Input Class

IO.Interfaces.ADC Namespace

Input Properties

The Input type exposes the following members.

Properties

	Name	Description
	voltage	Read-only property returning the analog input voltage.

Top

See Also

Reference

Input Class

IO.Interfaces.ADC Namespace

Inputvoltage Property

Read-only property returning the analog input voltage.

Namespace: IO.Interfaces.ADC
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public double voltage { get; }
```

Property Value

Type: Double

Implements

Voltagevoltage

See Also

Reference

Input Class
IO.Interfaces.ADC Namespace

Sample Interface

Abstract interface for ADC inputs returning an integer sample value.

Namespace: IO.Interfaces.ADC
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public interface Sample
```

The Sample type exposes the following members.

Properties

	Name	Description
	resolution	Read-only property returning the number of bits of resolution.
	sample	Read-only property returning an integer analog sample value.

Top

See Also

Reference

IO.Interfaces.ADC Namespace

Sample Properties

The Sample type exposes the following members.

Properties

	Name	Description
	resolution	Read-only property returning the number of bits of resolution.
	sample	Read-only property returning an integer analog sample value.

Top

See Also

Reference

Sample Interface

IO.Interfaces.ADC Namespace

Sampleresolution Property

Read-only property returning the number of bits of resolution.

Namespace: IO.Interfaces.ADC
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
int resolution { get; }
```

Property Value

Type: Int32

See Also

Reference

Sample Interface
IO.Interfaces.ADC Namespace

Samplesample Property

Read-only property returning an integer analog sample value.

Namespace: IO.Interfaces.ADC
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
int sample { get; }
```

Property Value

Type: Int32

See Also

Reference

Sample Interface
IO.Interfaces.ADC Namespace

Voltage Interface

Abstract interface for ADC inputs returning a floating point voltage value.

Namespace: IO.Interfaces.ADC
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public interface Voltage
```

The Voltage type exposes the following members.

Properties

	Name	Description
	voltage	Read-only property returning a floating point analog voltage value.

Top

See Also

Reference

IO.Interfaces.ADC Namespace

Voltage Properties

The Voltage type exposes the following members.

Properties

	Name	Description
	voltage	Read-only property returning a floating point analog voltage value.

Top

See Also

Reference

Voltage Interface
IO.Interfaces.ADC Namespace

Voltagevoltage Property

Read-only property returning a floating point analog voltage value.

Namespace: IO.Interfaces.ADC
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
double voltage { get; }
```

Property Value

Type: Double

See Also

Reference

Voltage Interface
IO.Interfaces.ADC Namespace

IO.Interfaces.DAC Namespace

Abstract Interface for DAC (Digital to Analog Converter) Outputs

Classes

	Class	Description
	Output	Encapsulates DAC voltage outputs.

Interfaces

	Interface	Description
	Sample	Abstract interface for DAC outputs accepting an integer output sample value.
	Voltage	Abstract interface for DAC outputs accepting a floating point output voltage value.

Output Class

Encapsulates DAC voltage outputs.

Inheritance Hierarchy

SystemObject IO.Interfaces.DACOutput

Namespace: IO.Interfaces.DAC
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class Output : Voltage
```

The Output type exposes the following members.

Constructors

	Name	Description
	Output	Create an DAC voltage output.

Top

Properties

	Name	Description
	voltage	Write-only for setting the DAC output voltage.

Top

See Also

Reference

IO.Interfaces.DAC Namespace

Output Constructor

Create an DAC voltage output.

Namespace: IO.Interfaces.DAC
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Output(
        Sample output,
        double reference,
        double gain = 1
)
```

Parameters

output
Type: IO.Interfaces.DACSample
DAC output object.

reference
Type: SystemDouble
DAC output reference in volts.

gain **(Optional)**
Type: SystemDouble
DAC output gain in volts per volt.

See Also

Reference

Output Class

IO.Interfaces.DAC Namespace

Output Properties

The Output type exposes the following members.

Properties

	Name	Description
	voltage	Write-only for setting the DAC output voltage.

Top

See Also

Reference

Output Class
IO.Interfaces.DAC Namespace

Outputvoltage Property

Write-only for setting the DAC output voltage.

Namespace: IO.Interfaces.DAC
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public double voltage { set; }
```

Property Value

Type: Double

Implements

Voltagevoltage

See Also

Reference

Output Class
IO.Interfaces.DAC Namespace

Sample Interface

Abstract interface for DAC outputs accepting an integer output sample value.

Namespace: IO.Interfaces.DAC
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public interface Sample
```

The Sample type exposes the following members.

Properties

	Name	Description
	resolution	Read-only property returning the number of bits of resolution.
	sample	Write-only property for setting the DAC output level.

Top

See Also

Reference

IO.Interfaces.DAC Namespace

Sample Properties

The Sample type exposes the following members.

Properties

	Name	Description
	resolution	Read-only property returning the number of bits of resolution.
	sample	Write-only property for setting the DAC output level.

Top

See Also

Reference

Sample Interface

IO.Interfaces.DAC Namespace

Sampleresolution Property

Read-only property returning the number of bits of resolution.

Namespace: IO.Interfaces.DAC
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
int resolution { get; }
```

Property Value

Type: Int32

See Also

Reference

Sample Interface
IO.Interfaces.DAC Namespace

Samplesample Property

Write-only property for setting the DAC output level.

Namespace: IO.Interfaces.DAC
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
int sample { set; }
```

Property Value

Type: Int32

See Also

Reference

Sample Interface
IO.Interfaces.DAC Namespace

Voltage Interface

Abstract interface for DAC outputs accepting a floating point output voltage value.

Namespace: IO.Interfaces.DAC
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public interface Voltage
```

The Voltage type exposes the following members.

Properties

	Name	Description
	voltage	Write-only property for setting the DAC output voltage.

Top

See Also

Reference

IO.Interfaces.DAC Namespace

Voltage Properties

The Voltage type exposes the following members.

Properties

	Name	Description
	voltage	Write-only property for setting the DAC output voltage.

Top

See Also

Reference

Voltage Interface
IO.Interfaces.DAC Namespace

Voltagevoltage Property

Write-only property for setting the DAC output voltage.

Namespace: IO.Interfaces.DAC
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
double voltage { set; }
```

Property Value

Type: Double

See Also

Reference

Voltage Interface
IO.Interfaces.DAC Namespace

IO.Interfaces.GPIO Namespace

Abstract Interface for GPIO (General Purpose Input/Output) Pins

Interfaces

	Interface	Description
	Pin	Abstract interface for GPIO pins.

Enumerations

	Enumeration	Description
	Direction	GPIO pin data direction settings.

Direction Enumeration

GPIO pin data direction settings.

Namespace: IO.Interfaces.GPIO
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public enum Direction
```

Members

Member name	Value	Description
Input	0	Input pin (read only)
Output	1	Output pin (read or write)

See Also

Reference

IO.Interfaces.GPIO Namespace

Pin Interface

Abstract interface for GPIO pins.

Namespace: IO.Interfaces.GPIO
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public interface Pin
```

The Pin type exposes the following members.

Properties

	Name	Description
	state	Read/Write GPIO state property.

Top

See Also

Reference

IO.Interfaces.GPIO Namespace

Pin Properties

The Pin type exposes the following members.

Properties

	Name	Description
	state	Read/Write GPIO state property.

Top

See Also

Reference

Pin Interface

IO.Interfaces.GPIO Namespace

Pinstate Property

Read/Write GPIO state property.

Namespace: IO.Interfaces.GPIO
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
bool state { get; set; }
```

Property Value

Type: Boolean

See Also

Reference

Pin Interface
IO.Interfaces.GPIO Namespace

IO.Interfaces.Humidity Namespace

Abstract Interface for Humidity Sensors

Interfaces

	Interface	Description
	Sensor	Abstract interface for humidity sensors.

Sensor Interface

Abstract interface for humidity sensors.

Namespace: IO.Interfaces.Humidity
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public interface Sensor
```

The Sensor type exposes the following members.

Properties

	Name	Description
	Humidity	Read-only property returning the percentage relative humidity.

Top

See Also

Reference
IO.Interfaces.Humidity Namespace

Sensor Properties

The Sensor type exposes the following members.

Properties

	Name	Description
	Humidity	Read-only property returning the percentage relative humidity.

Top

See Also

Reference

Sensor Interface

IO.Interfaces.Humidity Namespace

SensorHumidity Property

Read-only property returning the percentage relative humidity.

Namespace: IO.Interfaces.Humidity
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
double Humidity { get; }
```

Property Value

Type: Double

See Also

Reference

Sensor Interface
IO.Interfaces.Humidity Namespace

IO.Interfaces.I2C Namespace

Abstract Interface for I²C (Inter-Integrated Circuit) Bus Controllers

Classes

	Class	Description
	Device	Encapsulates a single I²C slave device.
	Speeds	I²C bus speed constants.

Interfaces

	Interface	Description
	Bus	Abstract interface for I²C bus controllers.

Bus Interface

Abstract interface for I²C bus controllers.

Namespace: IO.Interfaces.I2C
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public interface Bus
```

The Bus type exposes the following members.

Methods

	Name	Description
	Read	Read bytes from an I²C slave device.
	Transaction	Write and read bytes to and from an I²C slave device.
	Write	Write bytes to an I²C slave device.

Top

See Also

Reference

IO.Interfaces.I2C Namespace

Bus Methods

The Bus type exposes the following members.

Methods

	Name	Description
	Read	Read bytes from an I^2C slave device.
	Transaction	Write and read bytes to and from an I^2C slave device.
	Write	Write bytes to an I^2C slave device.

Top

See Also

Reference

Bus Interface

IO.Interfaces.I2C Namespace

BusRead Method

Read bytes from an I²C slave device.

Namespace: IO.Interfaces.I2C
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
void Read(
        int slaveaddr,
        byte[] resp,
        int resplen
)
```

Parameters

slaveaddr
Type: SystemInt32
I²C slave address.

resp
Type: SystemByte
Response buffer.

resplen
Type: SystemInt32
Number of bytes to read.

See Also

Reference

Bus Interface
IO.Interfaces.I2C Namespace

BusTransaction Method

Write and read bytes to and from an I²C slave device.

Namespace: IO.Interfaces.I2C
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
void Transaction(
        int slaveaddr,
        byte[] cmd,
        int cmdlen,
        byte[] resp,
        int resplen,
        int delayus = 0
)
```

Parameters

slaveaddr
Type: SystemInt32
I²C slave address.

cmd
Type: SystemByte
Command buffer.

cmdlen
Type: SystemInt32
Number of bytes to write.

resp

Type: SystemByte
Response buffer.

resplen

Type: SystemInt32
Number of bytes to read.

delayus **(Optional)**

Type: SystemInt32
Delay in microseconds between the I^2C write and read cycles.
Allowed values are 0 to 65535 microseconds.

See Also

Reference

Bus Interface
IO.Interfaces.I2C Namespace

BusWrite Method

Write bytes to an I²C slave device.

Namespace: IO.Interfaces.I2C
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
void Write(
        int slaveaddr,
        byte[] cmd,
        int cmdlen
)
```

Parameters

slaveaddr
Type: SystemInt32
I²C slave address.

cmd
Type: SystemByte
Command buffer.

cmdlen
Type: SystemInt32
Number of bytes to write.

See Also

Reference

Bus Interface
IO.Interfaces.I2C Namespace

Device Class

Encapsulates a single I²C slave device.

Inheritance Hierarchy

SystemObject IO.Interfaces.I2CDevice

Namespace: IO.Interfaces.I2C
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class Device
```

The Device type exposes the following members.

Constructors

	Name	Description
	Device	Create an I²C slave device.

Top

Methods

	Name	Description
	Read	Read bytes from an I²C slave device.

	Transaction	Write and read bytes to and from an I^2C slave device.
	Write	Write bytes to an I^2C slave device.

Top

See Also

Reference

IO.Interfaces.I2C Namespace

Device Constructor

Create an I²C slave device.

Namespace: IO.Interfaces.I2C
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Device(
        Bus bus,
        int slaveaddr
)
```

Parameters

bus
Type: IO.Interfaces.I2CBus
I²C bus controller object.

slaveaddr
Type: SystemInt32
I²C slave address.

See Also

Reference

Device Class
IO.Interfaces.I2C Namespace

Device Methods

The Device type exposes the following members.

Methods

	Name	Description
	Read	Read bytes from an I^2C slave device.
	Transaction	Write and read bytes to and from an I^2C slave device.
	Write	Write bytes to an I^2C slave device.

Top

See Also

Reference

Device Class

IO.Interfaces.I2C Namespace

DeviceRead Method

Read bytes from an I^{2}C slave device.

Namespace: IO.Interfaces.I2C
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public void Read(
        byte[] resp,
        int resplen
)
```

Parameters

resp
Type: SystemByte
Response buffer.

resplen
Type: SystemInt32
Number of bytes to read.

See Also

Reference

Device Class
IO.Interfaces.I2C Namespace

DeviceTransaction Method

Write and read bytes to and from an I²C slave device.

Namespace: IO.Interfaces.I2C
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public void Transaction(
        byte[] cmd,
        int cmdlen,
        byte[] resp,
        int resplen,
        int delayus = 0
)
```

Parameters

cmd
Type: SystemByte
Command buffer.

cmdlen
Type: SystemInt32
Number of bytes to write.

resp
Type: SystemByte
Response buffer.

resplen
Type: SystemInt32
Number of bytes to read.

delayus **(Optional)**

Type: SystemInt32

Delay in microseconds between the I^2C write and read cycles. Allowed values are 0 to 65535 microseconds.

See Also

Reference

Device Class

IO.Interfaces.I2C Namespace

DeviceWrite Method

Write bytes to an I²C slave device.

Namespace: IO.Interfaces.I2C
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public void Write(
        byte[] cmd,
        int cmdlen
)
```

Parameters

cmd
Type: SystemByte
Command buffer.

cmdlen
Type: SystemInt32
Number of bytes to write.

See Also

Reference

Device Class
IO.Interfaces.I2C Namespace

Speeds Class

I^2C bus speed constants.

Inheritance Hierarchy

SystemObject IO.Interfaces.I2CSpeeds

Namespace: IO.Interfaces.I2C
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public static class Speeds
```

The Speeds type exposes the following members.

Fields

	Name	Description
S	FastMode	Fast Mode
S	FastModePlus	Fast Mode Plus
S	StandardMode	Standard Mode

Top

See Also

Reference

IO.Interfaces.I2C Namespace

Speeds Fields

The Speeds type exposes the following members.

Fields

	Name	Description
	FastMode	Fast Mode
	FastModePlus	Fast Mode Plus
	StandardMode	Standard Mode

Top

See Also

Reference

Speeds Class

IO.Interfaces.I2C Namespace

SpeedsFastMode Field

Fast Mode

Namespace: IO.Interfaces.I2C
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const int FastMode = 400000
```

Field Value

Type: Int32

See Also

Reference

Speeds Class
IO.Interfaces.I2C Namespace

SpeedsFastModePlus Field

Fast Mode Plus

Namespace: IO.Interfaces.I2C
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const int FastModePlus = 1000000
```

Field Value

Type: Int32

See Also

Reference

Speeds Class
IO.Interfaces.I2C Namespace

SpeedsStandardMode Field

Standard Mode

Namespace: IO.Interfaces.I2C
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const int StandardMode = 100000
```

Field Value

Type: Int32

See Also

Reference

Speeds Class
IO.Interfaces.I2C Namespace

IO.Interfaces.Message.Text Namespace

Abstract Interface for Text Message Relays

Interfaces

	Interface	Description
	Relay	Abstract interface for a text message relay.

Relay Interface

Abstract interface for a text message relay.

Namespace: IO.Interfaces.Message.Text
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public interface Relay
```

The Relay type exposes the following members.

Methods

	Name	Description
	Send	Method for sending a text message.

Top

See Also

Reference

IO.Interfaces.Message.Text Namespace

Relay Methods

The Relay type exposes the following members.

Methods

	Name	Description
	Send	Method for sending a text message.

Top

See Also

Reference

Relay Interface

IO.Interfaces.Message.Text Namespace

RelaySend Method

Method for sending a text message.

Namespace: IO.Interfaces.Message.Text
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
void Send(
        string sender,
        string recipient,
        string subject,
        string message
)
```

Parameters

sender
Type: SystemString
Message originator.

recipient
Type: SystemString
Message recipient.

subject
Type: SystemString
Message subject.

message
Type: SystemString
Message text.

See Also

Reference

Relay Interface

IO.Interfaces.Message.Text Namespace

IO.Interfaces.Message64 Namespace

Abstract Interface for 64-Byte Message Services

Classes

	Class	Description
	Message	Encapsulates 64-byte messages.

Interfaces

	Interface	Description
	Messenger	Abstract interface for sending and receiving 64-byte messages.

Message Class

Encapsulates 64-byte messages.

Inheritance Hierarchy

SystemObject IO.Interfaces.Message64Message

Namespace: IO.Interfaces.Message64
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class Message
```

The Message type exposes the following members.

Constructors

	Name	Description
	Message	Create a message object without initializing the payload.
	Message(Byte)	Create a message object with an initialized payload.

Top

Fields

	Name	Description
	payload	Message payload.
S	Size	Message payload size.

Top

See Also

Reference

IO.Interfaces.Message64 Namespace

Message Constructor

Overload List

	Name	Description
	Message	Create a message object without initializing the payload.
	Message(Byte)	Create a message object with an initialized payload.

Top

See Also

Reference

Message Class

IO.Interfaces.Message64 Namespace

Message Constructor

Create a message object without initializing the payload.

Namespace: IO.Interfaces.Message64
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public Message()
```

See Also

Reference

Message Class
Message Overload
IO.Interfaces.Message64 Namespace

Message Constructor (Byte)

Create a message object with an initialized payload.

Namespace: IO.Interfaces.Message64
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Message(
        byte fill
)
```

Parameters

fill
Type: SystemByte
Value to initialize the payload with.

See Also

Reference

Message Class
Message Overload
IO.Interfaces.Message64 Namespace

Message Fields

The Message type exposes the following members.

Fields

	Name	Description
	payload	Message payload.
S	Size	Message payload size.

Top

See Also

Reference

Message Class

IO.Interfaces.Message64 Namespace

Messagepayload Field

Message payload.

Namespace: IO.Interfaces.Message64
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public byte[] payload
```

Field Value

Type: Byte

See Also

Reference

Message Class
IO.Interfaces.Message64 Namespace

MessageSize Field

Message payload size.

Namespace: IO.Interfaces.Message64
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public const int Size = 64
```

Field Value

Type: Int32

See Also

Reference

Message Class
IO.Interfaces.Message64 Namespace

Messenger Interface

Abstract interface for sending and receiving 64-byte messages.

Namespace: IO.Interfaces.Message64
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public interface Messenger
```

The Messenger type exposes the following members.

Methods

	Name	Description
	Receive	Receive a 64-byte message.
	Send	Send a 64-byte message.
	Transaction	Send a 64-byte command and receive a 64-byte response.

Top

See Also

Reference

IO.Interfaces.Message64 Namespace

Messenger Methods

The Messenger type exposes the following members.

Methods

	Name	Description
	Receive	Receive a 64-byte message.
	Send	Send a 64-byte message.
	Transaction	Send a 64-byte command and receive a 64-byte response.

Top

See Also

Reference

Messenger Interface

IO.Interfaces.Message64 Namespace

MessengerReceive Method

Receive a 64-byte message.

Namespace: IO.Interfaces.Message64
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
void Receive(
        Message resp
)
```

Parameters

resp
Type: IO.Interfaces.Message64Message
Message received.

See Also

Reference

Messenger Interface
IO.Interfaces.Message64 Namespace

MessengerSend Method

Send a 64-byte message.

Namespace: IO.Interfaces.Message64
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# **VB** **F#** Copy

```
void Send(
        Message cmd
)
```

Parameters

cmd
Type: IO.Interfaces.Message64Message
Message to be sent.

See Also

Reference

Messenger Interface
IO.Interfaces.Message64 Namespace

MessengerTransaction Method

Send a 64-byte command and receive a 64-byte response.

Namespace: IO.Interfaces.Message64
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
void Transaction(
        Message cmd,
        Message resp
)
```

Parameters

cmd
Type: IO.Interfaces.Message64Message
Command to be sent.

resp
Type: IO.Interfaces.Message64Message
Response to be received.

See Also

Reference

Messenger Interface
IO.Interfaces.Message64 Namespace

IO.Interfaces.Motor Namespace

Abstract Interface For Variable Speed Motor Outputs

Classes

	Class	Description
	Velocities	Motor velocity contants.

Interfaces

	Interface	Description
	Output	Abstract interface for variable speed motor outputs.

Output Interface

Abstract interface for variable speed motor outputs.

Namespace: IO.Interfaces.Motor
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public interface Output
```

The Output type exposes the following members.

Properties

	Name	Description
	velocity	Write-only motor velocity property.

Top

See Also

Reference
IO.Interfaces.Motor Namespace

Output Properties

The Output type exposes the following members.

Properties

	Name	Description
	velocity	Write-only motor velocity property.

Top

See Also

Reference

Output Interface
IO.Interfaces.Motor Namespace

Outputvelocity Property

Write-only motor velocity property.

Namespace: IO.Interfaces.Motor
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
double velocity { set; }
```

Property Value

Type: Double

See Also

Reference

Output Interface
IO.Interfaces.Motor Namespace

Velocities Class

Motor velocity contants.

Inheritance Hierarchy

SystemObject IO.Interfaces.MotorVelocities

Namespace: IO.Interfaces.Motor
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public static class Velocities
```

The Velocities type exposes the following members.

Fields

	Name	Description
S	Maximum	Maximum velocity (full speed forward).
S	Minimum	Minimum velocity (full speed reverse).
S	Stop	Zero velocity (motor stopped).

Top

See Also

Reference

IO.Interfaces.Motor Namespace

Velocities Fields

The Velocities type exposes the following members.

Fields

	Name	Description
	Maximum	Maximum velocity (full speed forward).
	Minimum	Minimum velocity (full speed reverse).
	Stop	Zero velocity (motor stopped).

Top

See Also

Reference

Velocities Class

IO.Interfaces.Motor Namespace

VelocitiesMaximum Field

Maximum velocity (full speed forward).

Namespace: IO.Interfaces.Motor
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const double Maximum = 1
```

Field Value

Type: Double

See Also

Reference

Velocities Class
IO.Interfaces.Motor Namespace

VelocitiesMinimum Field

Minimum velocity (full speed reverse).

Namespace: IO.Interfaces.Motor
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const double Minimum = -1
```

Field Value

Type: Double

See Also

Reference

Velocities Class
IO.Interfaces.Motor Namespace

VelocitiesStop Field

Zero velocity (motor stopped).

Namespace: IO.Interfaces.Motor
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const double Stop = 0
```

Field Value

Type: Double

See Also

Reference

Velocities Class
IO.Interfaces.Motor Namespace

IO.Interfaces.PWM Namespace

Abstract Interface for PWM (Pulse Width Modulated) Outputs

Classes

	Class	Description
	DutyCycles	PWM dutycycle contants.

Interfaces

	Interface	Description
	Output	Abstract interface for PWM outputs.

DutyCycles Class

PWM dutycycle contants.

Inheritance Hierarchy

SystemObject IO.Interfaces.PWMDutyCycles

Namespace: IO.Interfaces.PWM
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public static class DutyCycles
```

The DutyCycles type exposes the following members.

Fields

	Name	Description
s	Maximum	Maximum duty cycle (percent).
s	Minimum	Minimum duty cycle (percent).

Top

See Also

Reference

IO.Interfaces.PWM Namespace

DutyCycles Fields

The DutyCycles type exposes the following members.

Fields

	Name	Description
	Maximum	Maximum duty cycle (percent).
	Minimum	Minimum duty cycle (percent).

Top

See Also

Reference

DutyCycles Class
IO.Interfaces.PWM Namespace

DutyCyclesMaximum Field

Maximum duty cycle (percent).

Namespace: IO.Interfaces.PWM
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const double Maximum = 100
```

Field Value

Type: Double

See Also

Reference

DutyCycles Class
IO.Interfaces.PWM Namespace

DutyCyclesMinimum Field

Minimum duty cycle (percent).

Namespace: IO.Interfaces.PWM
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const double Minimum = 0
```

Field Value

Type: Double

See Also

Reference

DutyCycles Class
IO.Interfaces.PWM Namespace

Output Interface

Abstract interface for PWM outputs.

Namespace: IO.Interfaces.PWM
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public interface Output
```

The Output type exposes the following members.

Properties

	Name	Description
	dutycycle	Write-only PWM duty cycle property.

Top

See Also

Reference

IO.Interfaces.PWM Namespace

Output Properties

The Output type exposes the following members.

Properties

	Name	Description
	dutycycle	Write-only PWM duty cycle property.

Top

See Also

Reference

Output Interface
IO.Interfaces.PWM Namespace

Outputdutycycle Property

Write-only PWM duty cycle property.

Namespace: IO.Interfaces.PWM
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
double dutycycle { set; }
```

Property Value

Type: Double

See Also

Reference

Output Interface
IO.Interfaces.PWM Namespace

IO.Interfaces.Servo Namespace

Abstract Interface for Servo Outputs

Classes

	Class	Description
	Positions	Servo position contants.

Interfaces

	Interface	Description
	Output	Abstract interface for servo outputs.

Output Interface

Abstract interface for servo outputs.

Namespace: IO.Interfaces.Servo
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public interface Output
```

The Output type exposes the following members.

Properties

	Name	Description
	position	Write-only servo position property.

Top

See Also

Reference

IO.Interfaces.Servo Namespace

Output Properties

The Output type exposes the following members.

Properties

	Name	Description
	position	Write-only servo position property.

Top

See Also

Reference

Output Interface
IO.Interfaces.Servo Namespace

Outputposition Property

Write-only servo position property.

Namespace: IO.Interfaces.Servo
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
double position { set; }
```

Property Value

Type: Double

See Also

Reference

Output Interface
IO.Interfaces.Servo Namespace

Positions Class

Servo position contants.

Inheritance Hierarchy

SystemObject IO.Interfaces.ServoPositions

Namespace: IO.Interfaces.Servo
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public static class Positions
```

The Positions type exposes the following members.

Fields

	Name	Description
S	Maximum	Maximum displacement position.
S	Minimum	Minimum displacement position.
S	Neutral	Zero displacement (neutral) position.

Top

See Also

Reference

IO.Interfaces.Servo Namespace

Positions Fields

The Positions type exposes the following members.

Fields

	Name	Description
	Maximum	Maximum displacement position.
	Minimum	Minimum displacement position.
	Neutral	Zero displacement (neutral) position.

Top

See Also

Reference

Positions Class

IO.Interfaces.Servo Namespace

PositionsMaximum Field

Maximum displacement position.

Namespace: IO.Interfaces.Servo
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const double Maximum = 1
```

Field Value

Type: Double

See Also

Reference

Positions Class
IO.Interfaces.Servo Namespace

PositionsMinimum Field

Minimum displacement position.

Namespace: IO.Interfaces.Servo
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const double Minimum = -1
```

Field Value

Type: Double

See Also

Reference

Positions Class
IO.Interfaces.Servo Namespace

PositionsNeutral Field

Zero displacement (neutral) position.

Namespace: IO.Interfaces.Servo
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public const double Neutral = 0
```

Field Value

Type: Double

See Also

Reference

Positions Class
IO.Interfaces.Servo Namespace

IO.Interfaces.SPI Namespace

Abstract Interface for SPI (Serial Peripheral Interconnect) Slave Devices

Interfaces

	Interface	Description
	Device	Abstract interface for SPI slave devices.

Device Interface

Abstract interface for SPI slave devices.

Namespace: IO.Interfaces.SPI
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public interface Device
```

The Device type exposes the following members.

Methods

	Name	Description
	Read	Read bytes from an SPI slave device.
	Transaction	Write bytes to and read bytes from an SPI slave device.
	Write	Write bytes to an SPI slave device.

Top

See Also

Reference
IO.Interfaces.SPI Namespace

Device Methods

The Device type exposes the following members.

Methods

	Name	Description
	Read	Read bytes from an SPI slave device.
	Transaction	Write bytes to and read bytes from an SPI slave device.
	Write	Write bytes to an SPI slave device.

Top

See Also

Reference

Device Interface

IO.Interfaces.SPI Namespace

DeviceRead Method

Read bytes from an SPI slave device.

Namespace: IO.Interfaces.SPI
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
void Read(
        byte[] resp,
        int resplen
)
```

Parameters

resp
Type: SystemByte
Response buffer.

resplen
Type: SystemInt32
Number of bytes to read.

See Also

Reference

Device Interface
IO.Interfaces.SPI Namespace

DeviceTransaction Method

Write bytes to and read bytes from an SPI slave device.

Namespace: IO.Interfaces.SPI
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
void Transaction(
        byte[] cmd,
        int cmdlen,
        byte[] resp,
        int resplen,
        int delayus = 0
)
```

Parameters

cmd
Type: SystemByte
Command buffer.

cmdlen
Type: SystemInt32
Number of bytes to write.

resp
Type: SystemByte
Response buffer.

resplen
Type: SystemInt32
Number of bytes to read.

delayus **(Optional)**

Type: SystemInt32

Delay in microseconds between write and read operations.

See Also

Reference

Device Interface

IO.Interfaces.SPI Namespace

DeviceWrite Method

Write bytes to an SPI slave device.

Namespace: IO.Interfaces.SPI
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
void Write(
        byte[] cmd,
        int cmdlen
)
```

Parameters

cmd
Type: SystemByte
Command buffer.

cmdlen
Type: SystemInt32
Number of bytes to write.

See Also

Reference

Device Interface
IO.Interfaces.SPI Namespace

IO.Interfaces.Stepper Namespace

Abstract Interface for Stepper Motor Outputs

Interfaces

	Interface	Description
	Output	Abstract interface for stepper motor outputs.

Output Interface

Abstract interface for stepper motor outputs.

Namespace: IO.Interfaces.Stepper
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public interface Output
```

The Output type exposes the following members.

Properties

	Name	Description
	StepsPerRotation	Read-only property returning the number of steps a stepper motor has.

Top

Methods

	Name	Description
	Move	Move the stepper motor a specified number of steps at a specified rate.
	Spin	Spin (i.e. continuous rotation) the stepper

moter at a specified rate.

Top

See Also

Reference

IO.Interfaces.Stepper Namespace

Output Properties

The Output type exposes the following members.

Properties

	Name	Description
	StepsPerRotation	Read-only property returning the number of steps a stepper motor has.

Top

See Also

Reference

Output Interface
IO.Interfaces.Stepper Namespace

OutputStepsPerRotation Property

Read-only property returning the number of steps a stepper motor has.

Namespace: IO.Interfaces.Stepper
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
int StepsPerRotation { get; }
```

Property Value

Type: Int32

See Also

Reference

Output Interface
IO.Interfaces.Stepper Namespace

Output Methods

The Output type exposes the following members.

Methods

	Name	Description
	Move	Move the stepper motor a specified number of steps at a specified rate.
	Spin	Spin (i.e. continuous rotation) the stepper moter at a specified rate.

Top

See Also

Reference

Output Interface

IO.Interfaces.Stepper Namespace

OutputMove Method

Move the stepper motor a specified number of steps at a specified rate.

Namespace: IO.Interfaces.Stepper
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
void Move(
        int steps,
        float rate
)
```

Parameters

steps
Type: SystemInt32
Number of steps to move. Negative values indicate reverse motion and positive values indicate forward motion. (The directions are nominal and depend on how the stepper motor coils are wired). Zero indicates the stepper motor should be stopped.

rate
Type: SystemSingle
The rate of motion, in steps per second. Negative values indicate reverse motion and positive values indicate forward motion. (The directions are nominal and depend on how the stepper motor coils are wired). Zero indicates the stepper motor should be stopped.

See Also

Reference

Output Interface

IO.Interfaces.Stepper Namespace

OutputSpin Method

Spin (i.e. continuous rotation) the stepper moter at a specified rate.

Namespace: IO.Interfaces.Stepper
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
void Spin(
        float rate
)
```

Parameters

rate

Type: SystemSingle
The rate of motion, in steps per second. Negative values indicate reverse motion and positive values indicate forward motion. (The directions are nominal and depend on how the stepper motor coils are wired). Zero indicates the stepper motor should be stopped.

Remarks

Not all stepper motor drivers support continuous rotation.

See Also

Reference

Output Interface

IO.Interfaces.Stepper Namespace

IO.Interfaces.Temperature Namespace

Abstract Interface for Temperature Sensors

Classes

	Class	Description
	Conversions	Temperature conversion functions.

Interfaces

	Interface	Description
	Sensor	Abstract interface for temperature sensors.

Conversions Class

Temperature conversion functions.

Inheritance Hierarchy

SystemObject IO.Interfaces.TemperatureConversions

Namespace: IO.Interfaces.Temperature
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class Conversions
```

The Conversions type exposes the following members.

Constructors

	Name	Description
	Conversions	Initializes a new instance of the Conversions class

Top

Methods

	Name	Description
S	CelsiusToFahrenheit	Convert degrees Celsius to

		degrees Fahrenheit.
	CelsiusToKelvins	Convert degrees Celsius to Kelvins.
	FahrenheitToCelsius	Convert degrees Fahrenheit to degrees Celsius.
	FahrenheitToKelvins	Convert degrees Fahrenheit to Kelvins.
	KelvinsToCelsius	Convert Kelvins to degrees Celsius.
	KelvinsToFahrenheit	Convert Kelvins to degrees Fahrenheit.

Top

See Also

Reference

IO.Interfaces.Temperature Namespace

Conversions Constructor

Initializes a new instance of the Conversions class

Namespace: IO.Interfaces.Temperature
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Conversions()
```

See Also

Reference

Conversions Class
IO.Interfaces.Temperature Namespace

Conversions Methods

The Conversions type exposes the following members.

Methods

	Name	Description
S	CelsiusToFahrenheit	Convert degrees Celsius to degrees Fahrenheit.
S	CelsiusToKelvins	Convert degrees Celsius to Kelvins.
S	FahrenheitToCelsius	Convert degrees Fahrenheit to degrees Celsius.
S	FahrenheitToKelvins	Convert degrees Fahrenheit to Kelvins.
S	KelvinsToCelsius	Convert Kelvins to degrees Celsius.
S	KelvinsToFahrenheit	Convert Kelvins to degrees Fahrenheit.

Top

See Also

Reference

Conversions Class

IO.Interfaces.Temperature Namespace

ConversionsCelsiusToFahrenheit Method

Convert degrees Celsius to degrees Fahrenheit.

Namespace: IO.Interfaces.Temperature
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public static double CelsiusToFahrenheit(
        double celsius
)
```

Parameters

celsius
Type: SystemDouble
Temperature in degrees Celsius.

Return Value

Type: Double
Temperature in degrees Fahrenheit.

See Also

Reference

Conversions Class
IO.Interfaces.Temperature Namespace

ConversionsCelsiusToKelvins Method

Convert degrees Celsius to Kelvins.

Namespace: IO.Interfaces.Temperature
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public static double CelsiusToKelvins(
        double celsius
)
```

Parameters

celsius
Type: SystemDouble
Temperature in degrees Celsius.

Return Value

Type: Double
Temperature in Kelvins.

See Also

Reference

Conversions Class
IO.Interfaces.Temperature Namespace

ConversionsFahrenheitToCelsius Method

Convert degrees Fahrenheit to degrees Celsius.

Namespace: IO.Interfaces.Temperature
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public static double FahrenheitToCelsius(
        double fahrenheit
)
```

Parameters

fahrenheit
Type: SystemDouble
Temperature in degrees Fahrenheit.

Return Value

Type: Double
Temperature in degrees Celsius.

See Also

Reference

Conversions Class
IO.Interfaces.Temperature Namespace

ConversionsFahrenheitToKelvins Method

Convert degrees Fahrenheit to Kelvins.

Namespace: IO.Interfaces.Temperature
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public static double FahrenheitToKelvins(
        double fahrenheit
)
```

Parameters

fahrenheit
Type: SystemDouble
Temperature in degrees Fahrenheit.

Return Value

Type: Double
Temperature in Kelvins.

See Also

Reference

Conversions Class
IO.Interfaces.Temperature Namespace

ConversionsKelvinsToCelsius Method

Convert Kelvins to degrees Celsius.

Namespace: IO.Interfaces.Temperature
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public static double KelvinsToCelsius(
        double kelvins
)
```

Parameters

kelvins
Type: SystemDouble
Temperature in Kelvins.

Return Value

Type: Double
Temperature in degrees Celsius.

See Also

Reference

Conversions Class
IO.Interfaces.Temperature Namespace

ConversionsKelvinsToFahrenheit Method

Convert Kelvins to degrees Fahrenheit.

Namespace: IO.Interfaces.Temperature
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public static double KelvinsToFahrenheit(
        double kelvins
)
```

Parameters

kelvins
Type: SystemDouble
Temperature in Kelivns.

Return Value

Type: Double
Temperature in degrees Fahrenheit.

See Also

Reference

Conversions Class
IO.Interfaces.Temperature Namespace

Sensor Interface

Abstract interface for temperature sensors.

Namespace: IO.Interfaces.Temperature
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public interface Sensor
```

The Sensor type exposes the following members.

Properties

	Name	Description
	Celsius	Read-only property returning the temperature in degrees Celsius.
	Fahrenheit	Read-only property returning the temperature in degrees Fahrenheit.
	Kelvins	Read-only property returning the temperature in Kelvins.

Top

See Also

Reference

IO.Interfaces.Temperature Namespace

Sensor Properties

The Sensor type exposes the following members.

Properties

	Name	Description
	Celsius	Read-only property returning the temperature in degrees Celsius.
	Fahrenheit	Read-only property returning the temperature in degrees Fahrenheit.
	Kelvins	Read-only property returning the temperature in Kelvins.

Top

See Also

Reference

Sensor Interface

IO.Interfaces.Temperature Namespace

SensorCelsius Property

Read-only property returning the temperature in degrees Celsius.

Namespace: IO.Interfaces.Temperature
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
double Celsius { get; }
```

Property Value

Type: Double

See Also

Reference

Sensor Interface
IO.Interfaces.Temperature Namespace

SensorFahrenheit Property

Read-only property returning the temperature in degrees Fahrenheit.

Namespace: IO.Interfaces.Temperature
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
double Fahrenheit { get; }
```

Property Value

Type: Double

See Also

Reference

Sensor Interface
IO.Interfaces.Temperature Namespace

SensorKelvins Property

Read-only property returning the temperature in Kelvins.

Namespace: IO.Interfaces.Temperature
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
double Kelvins { get; }
```

Property Value

Type: Double

See Also

Reference

Sensor Interface
IO.Interfaces.Temperature Namespace

IO.Interfaces.Watchdog Namespace

Abstract Interface for Watchdog Timers

Interfaces

	Interface	Description
	Timer	Abstract interface for watchdog timers.

Timer Interface

Abstract interface for watchdog timers.

Namespace: IO.Interfaces.Watchdog
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public interface Timer
```

The Timer type exposes the following members.

Properties

	Name	Description
	timeout	Read/Write watchdog timer period property.

Top

Methods

	Name	Description
	Kick	Reset the watchdog timer.

Top

See Also

Reference

IO.Interfaces.Watchdog Namespace

Timer Properties

The Timer type exposes the following members.

Properties

	Name	Description
	timeout	Read/Write watchdog timer period property.

Top

See Also

Reference

Timer Interface

IO.Interfaces.Watchdog Namespace

Timertimeout Property

Read/Write watchdog timer period property.

Namespace: IO.Interfaces.Watchdog
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
int timeout { get; set; }
```

Property Value

Type: Int32

See Also

Reference

Timer Interface
IO.Interfaces.Watchdog Namespace

Timer Methods

The Timer type exposes the following members.

Methods

	Name	Description
	Kick	Reset the watchdog timer.

Top

See Also

Reference

Timer Interface

IO.Interfaces.Watchdog Namespace

TimerKick Method

Reset the watchdog timer.

Namespace: IO.Interfaces.Watchdog
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
void Kick()
```

See Also

Reference

Timer Interface
IO.Interfaces.Watchdog Namespace

IO.Objects.GPIO.PWM Namespace

PWM Controlled GPIO Output Services

Classes

	Class	Description
	Pin	Encapsulates GPIO output pins implemented with PWM outputs.

Pin Class

Encapsulates GPIO output pins implemented with PWM outputs.

Inheritance Hierarchy

SystemObject IO.Objects.GPIO.PWMPin

Namespace: IO.Objects.GPIO.PWM
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class Pin : Pin
```

The Pin type exposes the following members.

Constructors

	Name	Description
	Pin	Constructor for a single GPIO pin.

Top

Properties

	Name	Description
	state	Read/Write GPIO state property.

Top

Remarks

Use cases for this class include ON/OFF things like an LED or a solenoid valve driven from a PWM output.

Remarks

Depending on the PWM hardware implementation, the OFF duty cycle may be slightly greater than 0 % and/or the ON duty cycle may be slightly less than 100 %.

See Also

Reference

IO.Objects.GPIO.PWM Namespace

Pin Constructor

Constructor for a single GPIO pin.

Namespace: IO.Objects.GPIO.PWM
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Pin(
        Output outp,
        bool state = false,
        double dutycycle = 100
)
```

Parameters

outp
Type: IO.Interfaces.PWMOutput
PWM output instance.

state **(Optional)**
Type: SystemBoolean
Initial GPIO output state.

dutycycle **(Optional)**
Type: SystemDouble
Initial PWM output duty cycle. Allowed values are 0.0 to 100.0 percent.

See Also

Reference

Pin Class
IO.Objects.GPIO.PWM Namespace

Pin Properties

The Pin type exposes the following members.

Properties

	Name	Description
	state	Read/Write GPIO state property.

Top

See Also

Reference

Pin Class

IO.Objects.GPIO.PWM Namespace

Pinstate Property

Read/Write GPIO state property.

Namespace: IO.Objects.GPIO.PWM
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public bool state { get; set; }
```

Property Value

Type: Boolean

Implements

Pinstate

See Also

Reference

Pin Class
IO.Objects.GPIO.PWM Namespace

IO.Objects.Message64.UDP Namespace

64-Byte Message Services over UDP

Classes

	Class	Description
	Messenger	64-Byte Message Transport Client Services using UDP (User Datagram Protocol).

Messenger Class

64-Byte Message Transport Client Services using UDP (User Datagram Protocol).

Inheritance Hierarchy

SystemObject IO.Objects.Message64.UDPMessenger

Namespace: IO.Objects.Message64.UDP
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public class Messenger : Messenger
```

The Messenger type exposes the following members.

Constructors

	Name	Description
	Messenger	Constructor for a 64-byte Messenger instance using UDP.

Top

Methods

	Name	Description

	Receive	Receive a 64-byte response message from a raw HID device.
	Send	Send a 64-byte command message to a raw HID device.
	Transaction	Send a 64-byte command message and receive a 64-byte response message.

Top

See Also

Reference

IO.Objects.Message64.UDP Namespace

Messenger Constructor

Constructor for a 64-byte Messenger instance using UDP.

Namespace: IO.Objects.Message64.UDP
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Messenger(
        string host,
        int port,
        int timeoutms = 1000
)
```

Parameters

host
Type: SystemString
UDP server domain name or IP address.

port
Type: SystemInt32
UDP server port number.

timeoutms **(Optional)**
Type: SystemInt32
Receive timeout in milliseconds. Zero indicates wait forever.

See Also

Reference

Messenger Class

IO.Objects.Message64.UDP Namespace

Messenger Methods

The Messenger type exposes the following members.

Methods

	Name	Description
	Receive	Receive a 64-byte response message from a raw HID device.
	Send	Send a 64-byte command message to a raw HID device.
	Transaction	Send a 64-byte command message and receive a 64-byte response message.

Top

See Also

Reference

Messenger Class

IO.Objects.Message64.UDP Namespace

MessengerReceive Method

Receive a 64-byte response message from a raw HID device.

Namespace: IO.Objects.Message64.UDP
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# **VB** **F#** Copy

```
public void Receive(
        Message resp
)
```

Parameters

resp
Type: IO.Interfaces.Message64Message
64-byte response message.

Implements

MessengerReceive(Message)

See Also

Reference

Messenger Class
IO.Objects.Message64.UDP Namespace

MessengerSend Method

Send a 64-byte command message to a raw HID device.

Namespace: IO.Objects.Message64.UDP
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# **VB** **F#** Copy

```
public void Send(
        Message cmd
)
```

Parameters

cmd
Type: IO.Interfaces.Message64Message
64-byte command message.

Implements

MessengerSend(Message)

See Also

Reference

Messenger Class
IO.Objects.Message64.UDP Namespace

MessengerTransaction Method

Send a 64-byte command message and receive a 64-byte response message.

Namespace: IO.Objects.Message64.UDP
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public void Transaction(
        Message cmd,
        Message resp
)
```

Parameters

cmd
Type: IO.Interfaces.Message64Message
64-byte command message.

resp
Type: IO.Interfaces.Message64Message
64-byte response message.

Implements

MessengerTransaction(Message, Message)

See Also

Reference

Messenger Class

IO.Objects.Message64.UDP Namespace

IO.Objects.Motor.PWM Namespace

PWM Controlled Motor Services

Classes

	Class	Description
	Output	Encapsulates motors controlled by PWM and GPIO outputs.

Output Class

Encapsulates motors controlled by PWM and GPIO outputs.

Inheritance Hierarchy

SystemObject IO.Objects.Motor.PWMOutput

Namespace: IO.Objects.Motor.PWM
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# **VB** **F#** Copy

```
public class Output : Output
```

The Output type exposes the following members.

Constructors

	Name	Description
	Output(Output, Output, Double)	Constructor for a single motor, using two PWM outputs for clockwise and counterclockwise rotation control.
	Output(Pin, Output, Double)	Constructor for a single motor, using one GPIO pin for direction control, and one PWM output for speed control.

Top

Properties

	Name	Description
	velocity	Write-only property for setting the normalized motor velocity. Allowed values are -1.0 (full speed reverse) to +1.0 (full speed forward).

Top

See Also

Reference

IO.Objects.Motor.PWM Namespace

Output Constructor

Overload List

	Name	Description
	Output(Output, Output, Double)	Constructor for a single motor, using two PWM outputs for clockwise and counterclockwise rotation control.
	Output(Pin, Output, Double)	Constructor for a single motor, using one GPIO pin for direction control, and one PWM output for speed control.

Top

See Also

Reference

Output Class

IO.Objects.Motor.PWM Namespace

Output Constructor (Output, Output, Double)

Constructor for a single motor, using two PWM outputs for clockwise and counterclockwise rotation control.

Namespace: IO.Objects.Motor.PWM
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Output(
        Output clockwise,
        Output counterclockwise,
        double velocity = 0
)
```

Parameters

clockwise
Type: IO.Interfaces.PWMOutput
PWM output instance (for clockwise rotation control).

counterclockwise
Type: IO.Interfaces.PWMOutput
PWM output instance (for counterclockwise rotation control).

velocity **(Optional)**
Type: SystemDouble
Initial motor velocity.

See Also

Reference

Output Class
Output Overload
IO.Objects.Motor.PWM Namespace

Output Constructor (Pin, Output, Double)

Constructor for a single motor, using one GPIO pin for direction control, and one PWM output for speed control.

Namespace: IO.Objects.Motor.PWM
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Output(
        Pin direction,
        Output speed,
        double velocity = 0
)
```

Parameters

direction
Type: IO.Interfaces.GPIOPin
GPIO pin instance (for direction control).

speed
Type: IO.Interfaces.PWMOutput
PWM output instance (for speed control).

velocity **(Optional)**
Type: SystemDouble
Initial motor velocity.

See Also

Reference

Output Class
Output Overload
IO.Objects.Motor.PWM Namespace

Output Properties

The Output type exposes the following members.

Properties

	Name	Description
	velocity	Write-only property for setting the normalized motor velocity. Allowed values are -1.0 (full speed reverse) to +1.0 (full speed forward).

Top

See Also

Reference

Output Class

IO.Objects.Motor.PWM Namespace

Outputvelocity Property

Write-only property for setting the normalized motor velocity. Allowed values are -1.0 (full speed reverse) to +1.0 (full speed forward).

Namespace: IO.Objects.Motor.PWM
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public double velocity { set; }
```

Property Value

Type: Double

Implements

Outputvelocity

See Also

Reference

Output Class
IO.Objects.Motor.PWM Namespace

IO.Objects.Motor.Servo Namespace

Servo Controlled Motor (e.g. continuous rotation servo) Services

Classes

	Class	Description
	Output	Encapsulates motors controlled by servo outputs (e.g. continuous rotation servos).

Output Class

Encapsulates motors controlled by servo outputs (e.g. continuous rotation servos).

Inheritance Hierarchy

SystemObject IO.Objects.Motor.ServoOutput

Namespace: IO.Objects.Motor.Servo
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class Output : Output
```

The Output type exposes the following members.

Constructors

	Name	Description
	Output	Constructor for a single motor output.

Top

Properties

	Name	Description
	velocity	Write-only property for setting the

	normalized motor velocity. Allowed values are -1.0 (full speed reverse) to +1.0 (full speed forward.

Top

See Also

Reference

IO.Objects.Motor.Servo Namespace

Output Constructor

Constructor for a single motor output.

Namespace: IO.Objects.Motor.Servo
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Output(
        Output servo,
        double velocity = 0
)
```

Parameters

servo
Type: IO.Interfaces.ServoOutput
Servo output instance.

velocity **(Optional)**
Type: SystemDouble
Initial motor velocity.

See Also

Reference

Output Class
IO.Objects.Motor.Servo Namespace

Output Properties

The Output type exposes the following members.

Properties

	Name	Description
	velocity	Write-only property for setting the normalized motor velocity. Allowed values are -1.0 (full speed reverse) to +1.0 (full speed forward.

Top

See Also

Reference

Output Class

IO.Objects.Motor.Servo Namespace

Outputvelocity Property

Write-only property for setting the normalized motor velocity. Allowed values are -1.0 (full speed reverse) to +1.0 (full speed forward.

Namespace: IO.Objects.Motor.Servo
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public double velocity { set; }
```

Property Value

Type: Double

Implements

Outputvelocity

See Also

Reference

Output Class
IO.Objects.Motor.Servo Namespace

IO.Objects.Servo.PWM Namespace

PWM Controlled Servo Services

Classes

	Class	Description
	Output	Encapsulates servo outputs using PWM outputs.

Output Class

Encapsulates servo outputs using PWM outputs.

Inheritance Hierarchy

SystemObject IO.Objects.Servo.PWMOutput

Namespace: IO.Objects.Servo.PWM
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class Output : Output
```

The Output type exposes the following members.

Constructors

	Name	Description
	Output	Constructor for a single servo output.

Top

Properties

	Name	Description
	position	Write-only property for setting the servo position. Allowed values are -1.0 to +1.0.

Top

See Also

Reference

IO.Objects.Servo.PWM Namespace

Output Constructor

Constructor for a single servo output.

Namespace: IO.Objects.Servo.PWM
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Output(
        Output pwm,
        int freq = 50,
        double position = 0
)
```

Parameters

pwm
Type: IO.Interfaces.PWMOutput
PWM output instance.

freq **(Optional)**
Type: SystemInt32
PWM pulse frequency.

position **(Optional)**
Type: SystemDouble
Initial servo position.

See Also

Reference

Output Class

IO.Objects.Servo.PWM Namespace

Output Properties

The Output type exposes the following members.

Properties

	Name	Description
	position	Write-only property for setting the servo position. Allowed values are -1.0 to +1.0.

Top

See Also

Reference

Output Class

IO.Objects.Servo.PWM Namespace

Outputposition Property

Write-only property for setting the servo position. Allowed values are -1.0 to +1.0.

Namespace: IO.Objects.Servo.PWM
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public double position { set; }
```

Property Value

Type: Double

Implements

Outputposition

See Also

Reference

Output Class
IO.Objects.Servo.PWM Namespace

IO.Objects.USB.HID Namespace

USB Raw HID (Human Interface Device) Transport Services

Classes

	Class	Description
	Messenger	Encapsulates USB raw HID devices, using the HidSharp library or libsimpleio.

Messenger Class

Encapsulates USB raw HID devices, using the HidSharp library or libsimpleio.

Inheritance Hierarchy

SystemObject IO.Objects.USB.HIDMessenger

Namespace: IO.Objects.USB.HID
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class Messenger : Messenger
```

The Messenger type exposes the following members.

Constructors

	Name	Description
	Messenger	Create a 64-byte messenger object bound to a USB HID device.

Top

Properties

	Name	Description

	Info	Information string from the USB HID device.

Top

Methods

	Name	Description
	Receive	Receive a 64-byte message from a USB HID device.
	Send	Send a 64-byte message to a USB HID device.
	Transaction	Send a 64-byte command message to and receive a 64-byte response message from a USB HID device.

Top

See Also

Reference

IO.Objects.USB.HID Namespace

Messenger Constructor

Create a 64-byte messenger object bound to a USB HID device.

Namespace: IO.Objects.USB.HID
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Messenger(
        int vid = 5840,
        int pid = 2810,
        string serialnumber = null,
        int timeoutms = 1000
)
```

Parameters

vid **(Optional)**
Type: SystemInt32
Vendor ID

pid **(Optional)**
Type: SystemInt32
Product ID

serialnumber **(Optional)**
Type: SystemString
Serial number

timeoutms **(Optional)**
Type: SystemInt32
Time in milliseconds to wait for read and write operations to

complete. Zero means wait forever.

See Also

Reference

Messenger Class

IO.Objects.USB.HID Namespace

Messenger Properties

The Messenger type exposes the following members.

Properties

	Name	Description
	Info	Information string from the USB HID device.

Top

See Also

Reference

Messenger Class
IO.Objects.USB.HID Namespace

MessengerInfo Property

Information string from the USB HID device.

Namespace: IO.Objects.USB.HID
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public string Info { get; }
```

Property Value

Type: String

See Also

Reference

Messenger Class
IO.Objects.USB.HID Namespace

Messenger Methods

The Messenger type exposes the following members.

Methods

	Name	Description
	Receive	Receive a 64-byte message from a USB HID device.
	Send	Send a 64-byte message to a USB HID device.
	Transaction	Send a 64-byte command message to and receive a 64-byte response message from a USB HID device.

Top

See Also

Reference

Messenger Class
IO.Objects.USB.HID Namespace

MessengerReceive Method

Receive a 64-byte message from a USB HID device.

Namespace: IO.Objects.USB.HID
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# **VB** **F#** Copy

```
public void Receive(
        Message resp
)
```

Parameters

resp
Type: IO.Interfaces.Message64Message
Message received.

Implements

MessengerReceive(Message)

See Also

Reference

Messenger Class
IO.Objects.USB.HID Namespace

MessengerSend Method

Send a 64-byte message to a USB HID device.

Namespace: IO.Objects.USB.HID
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# **VB** **F#** Copy

```
public void Send(
        Message cmd
)
```

Parameters

cmd
Type: IO.Interfaces.Message64Message
Message to be sent.

Implements

MessengerSend(Message)

See Also

Reference

Messenger Class
IO.Objects.USB.HID Namespace

MessengerTransaction Method

Send a 64-byte command message to and receive a 64-byte response message from a USB HID device.

Namespace: IO.Objects.USB.HID
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public void Transaction(
        Message cmd,
        Message resp
)
```

Parameters

cmd
Type: IO.Interfaces.Message64Message
Message to be sent.

resp
Type: IO.Interfaces.Message64Message
Message received.

Implements

MessengerTransaction(Message, Message)

See Also

Reference

Messenger Class

IO.Objects.USB.HID Namespace

IO.Remote Namespace

Remote I/O Device Framework, for sending commands and receiving response to/from Remote I/O Protocol devices.

Classes

	Class	Description
	ADC	Encapsulates remote A/D inputs.
	DAC	Encapsulates remote D/A outputs.
	Device	Encasulates a remote I/O device.
	GPIO	Encapsulates remote GPIO pins.
	I2C	Encapsulates remote I^2C buses.
	PWM	Encapsulates remote PWM outputs.
	SPI	Encapsulates remote SPI slave devices.

Enumerations

	Enumeration	Description
	MessageTypes	Remote I/O protocol message types
	PeripheralTypes	Types of remote peripherals

ADC Class

Encapsulates remote A/D inputs.

Inheritance Hierarchy

SystemObject IO.RemoteADC

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class ADC : Sample
```

The ADC type exposes the following members.

Constructors

	Name	Description
	ADC	Create a remote A/D input.

Top

Properties

	Name	Description
	resolution	Read-only property returning the number of bits of resolution.

	sample	Read-only property returning an integer analog input sample.

Top

See Also

Reference

IO.Remote Namespace

ADC Constructor

Create a remote A/D input.

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public ADC(
        Device dev,
        int num
)
```

Parameters

dev
Type: IO.RemoteDevice
Remote I/O device object.

num
Type: SystemInt32
A/D input number: 0 to 127.

Remarks

Use `Device.ADC_Create()` instead of this constructor.

See Also

Reference

ADC Class

IO.Remote Namespace

ADC Properties

The ADC type exposes the following members.

Properties

	Name	Description
	resolution	Read-only property returning the number of bits of resolution.
	sample	Read-only property returning an integer analog input sample.

Top

See Also

Reference

ADC Class

IO.Remote Namespace

ADCresolution Property

Read-only property returning the number of bits of resolution.

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public int resolution { get; }
```

Property Value

Type: Int32

Implements

Sampleresolution

See Also

Reference

ADC Class
IO.Remote Namespace

ADCsample Property

Read-only property returning an integer analog input sample.

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public int sample { get; }
```

Property Value

Type: Int32

Implements

Samplesample

See Also

Reference

ADC Class
IO.Remote Namespace

DAC Class

Encapsulates remote D/A outputs.

Inheritance Hierarchy

SystemObject IO.RemoteDAC

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public class DAC : Sample
```

The DAC type exposes the following members.

Constructors

	Name	Description
	DAC	Create a remote D/A output.

Top

Properties

	Name	Description
	resolution	Read-only property returning the number of bits of resolution.

	sample	Write-only property for writing an integer analog sample to a DAC output.

Top

See Also

Reference

IO.Remote Namespace

DAC Constructor

Create a remote D/A output.

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public DAC(
        Device dev,
        int num,
        int sample = 0
)
```

Parameters

dev
Type: IO.RemoteDevice
Remote I/O device object.

num
Type: SystemInt32
D/A output number: 0 to 127.

sample **(Optional)**
Type: SystemInt32
Initial DAC output sample.

Remarks

Use `Device.DAC_Create()` instead of this constructor.

See Also

Reference

DAC Class

IO.Remote Namespace

DAC Properties

The DAC type exposes the following members.

Properties

	Name	Description
	resolution	Read-only property returning the number of bits of resolution.
	sample	Write-only property for writing an integer analog sample to a DAC output.

Top

See Also

Reference

DAC Class

IO.Remote Namespace

DACresolution Property

Read-only property returning the number of bits of resolution.

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public int resolution { get; }
```

Property Value

Type: Int32

Implements

Sampleresolution

See Also

Reference

DAC Class
IO.Remote Namespace

DACsample Property

Write-only property for writing an integer analog sample to a DAC output.

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public int sample { set; }
```

Property Value

Type: Int32

Implements

Samplesample

See Also

Reference

DAC Class
IO.Remote Namespace

Device Class

Encasulates a remote I/O device.
Encasulates a remote I/O device.

Inheritance Hierarchy

SystemObject IO.RemoteDevice

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class Device
```

The Device type exposes the following members.

Constructors

	Name	Description
	Device	Create a Remote I/O device object for a Munts Technologies USB raw HID (VID=0x16D0, PID=0x0AFA) device Remote I/O Server.
	Device(Messenger)	Create a Remote I/O device object.

Top

Properties

	Name	Description
	Capabilities	Capability string from the Remote I/O device.
	Version	Version string from the Remote I/O device.

Top

Methods

	Name	Description
	ADC_Available	Query available A/D inputs.
	ADC_Create	Create a remote A/D input.
	DAC_Available	Query available D/A outputs.
	DAC_Create	Create a remote D/A output.
	Dispatcher	Command dispatcher.
	GPIO_Available	Query available GPIO pins.
	GPIO_Create	Create a remote GPIO pin object.
	I2C_Available	Query available I^2C buses.
	I2C_Create	Create a remote I^2C bus controller.

	PWM_Available	Query available PWM outputs.
	PWM_Create	Create a remote PWM output.
	SPI_Available	Query available SPI slave devices.
	SPI_Create	Create a remote SPI slave device.

Top

Fields

	Name	Description
S	MAX_CHANNELS	Maximum number of channels each subsystem can support.
S	Unavailable	Designator for an unavailable channel.

Top

See Also

Reference

IO.Remote Namespace

Device Constructor

Overload List

	Name	Description
	Device	Create a Remote I/O device object for a Munts Technologies USB raw HID (VID=0x16D0, PID=0x0AFA) device Remote I/O Server.
	Device(Messenger)	Create a Remote I/O device object.

Top

See Also

Reference

Device Class

IO.Remote Namespace

Device Constructor

Create a Remote I/O device object for a Munts Technologies USB raw HID (VID=0x16D0, PID=0x0AFA) device Remote I/O Server.

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Device()
```

See Also

Reference

Device Class
Device Overload
IO.Remote Namespace

Device Constructor (Messenger)

Create a Remote I/O device object.

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# **VB** **F#** Copy

```
public Device(
        Messenger m
)
```

Parameters

m
Type: IO.Interfaces.Message64Messenger
Message transport object

See Also

Reference

Device Class
Device Overload
IO.Remote Namespace

Device Properties

The Device type exposes the following members.

Properties

	Name	Description
	Capabilities	Capability string from the Remote I/O device.
	Version	Version string from the Remote I/O device.

Top

See Also

Reference

Device Class

IO.Remote Namespace

DeviceCapabilities Property

Capability string from the Remote I/O device.

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public string Capabilities { get; }
```

Property Value

Type: String

See Also

Reference

Device Class
IO.Remote Namespace

DeviceVersion Property

Version string from the Remote I/O device.

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public string Version { get; }
```

Property Value

Type: String

See Also

Reference

Device Class
IO.Remote Namespace

Device Methods

The Device type exposes the following members.

Methods

	Name	Description
	ADC_Available	Query available A/D inputs.
	ADC_Create	Create a remote A/D input.
	DAC_Available	Query available D/A outputs.
	DAC_Create	Create a remote D/A output.
	Dispatcher	Command dispatcher.
	GPIO_Available	Query available GPIO pins.
	GPIO_Create	Create a remote GPIO pin object.
	I2C_Available	Query available I^2C buses.
	I2C_Create	Create a remote I^2C bus controller.
	PWM_Available	Query available PWM outputs.
	PWM_Create	Create a remote PWM output.
	SPI_Available	Query available SPI slave devices.

SPI_Create	Create a remote SPI slave device.

Top

See Also

Reference

Device Class
IO.Remote Namespace

DeviceADC_Available Method

Query available A/D inputs.

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public List<int> ADC_Available()
```

Return Value

Type: ListInt32
List of available A/D input numbers.

See Also

Reference

Device Class
IO.Remote Namespace

DeviceADC_Create Method

Create a remote A/D input.

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Sample ADC_Create(
        int num
)
```

Parameters

num
Type: SystemInt32
A/D input number: 0 to 127.

Return Value

Type: Sample
A/D input object.

See Also

Reference

Device Class
IO.Remote Namespace

DeviceDAC_Available Method

Query available D/A outputs.

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public List<int> DAC_Available()
```

Return Value

Type: ListInt32
List of available D/A output numbers.

See Also

Reference

Device Class
IO.Remote Namespace

DeviceDAC_Create Method

Create a remote D/A output.

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Sample DAC_Create(
        int num,
        int sample = 0
)
```

Parameters

num
Type: SystemInt32
D/A output number: 0 to 127.

sample **(Optional)**
Type: SystemInt32
Initial DAC output sample.

Return Value

Type: Sample
D/A output object.

See Also

Reference

Device Class

IO.Remote Namespace

DeviceDispatcher Method

Command dispatcher.

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public void Dispatcher(
        Message cmd,
        Message resp
)
```

Parameters

cmd
Type: IO.Interfaces.Message64Message
Command to be sent.

resp
Type: IO.Interfaces.Message64Message
Response to be received.

See Also

Reference

Device Class
IO.Remote Namespace

DeviceGPIO_Available Method

Query available GPIO pins.

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public List<int> GPIO_Available()
```

Return Value

Type: ListInt32
List of available GPIO pin numbers.

See Also

Reference

Device Class
IO.Remote Namespace

DeviceGPIO_Create Method

Create a remote GPIO pin object.

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public Pin GPIO_Create(
        int num,
        Direction dir,
        bool state = false
)
```

Parameters

num
Type: SystemInt32
GPIO pin number: 0 to 127.

dir
Type: IO.Interfaces.GPIODirection
GPIO pin data direction: Input or Output.

state **(Optional)**
Type: SystemBoolean
Initial GPIO output state.

Return Value

Type: Pin
GPIO pin object.

See Also

Reference

Device Class

IO.Remote Namespace

DeviceI2C_Available Method

Query available I²C buses.

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public List<int> I2C_Available()
```

Return Value

Type: ListInt32
List of available I²C bus numbers.

See Also

Reference

Device Class
IO.Remote Namespace

DeviceI2C_Create Method

Create a remote I²C bus controller.

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Bus I2C_Create(
        int num,
        int speed = 100000
)
```

Parameters

num
Type: SystemInt32
I²C bus number: 0 to 127.

speed **(Optional)**
Type: SystemInt32
I²C bus clock frequency in Hz

Return Value

Type: Bus
I²C bus controller object.

See Also

Reference

Device Class

IO.Remote Namespace

DevicePWM_Available Method

Query available PWM outputs.

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public List<int> PWM_Available()
```

Return Value

Type: ListInt32
List of available PWM output numbers.

See Also

Reference

Device Class
IO.Remote Namespace

DevicePWM_Create Method

Create a remote PWM output.

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Output PWM_Create(
        int num,
        int freq,
        double duty = 0
)
```

Parameters

num
Type: SystemInt32
PWM output number: 0 to 127.

freq
Type: SystemInt32
PWM pulse frequency in Hz.

duty **(Optional)**
Type: SystemDouble
Initial PWM output duty cycle.

Return Value

Type: Output
PWM output object.

See Also

Reference

Device Class

IO.Remote Namespace

DeviceSPI_Available Method

Query available SPI slave devices.

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public List<int> SPI_Available()
```

Return Value

Type: ListInt32
List of available SPI slave device numbers.

See Also

Reference

Device Class
IO.Remote Namespace

DeviceSPI_Create Method

Create a remote SPI slave device.

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Device SPI_Create(
        int num,
        int mode,
        int wordsize,
        int speed
)
```

Parameters

num
Type: SystemInt32
SPI slave device number: 0 to 127.

mode
Type: SystemInt32
SPI transfer mode: 0 to 3.

wordsize
Type: SystemInt32
SPI transfer word size: 8, 16, or 32.

speed
Type: SystemInt32
SPI transfer speed in bits per second.

Return Value

Type: Device

SPI slave device object.

Remarks

The actual SPI transfer rate will be the highest realizable rate that does not exceed the value specified in `speed`.

See Also

Reference

Device Class

IO.Remote Namespace

Device Fields

The Device type exposes the following members.

Fields

	Name	Description
	MAX_CHANNELS	Maximum number of channels each subsystem can support.
	Unavailable	Designator for an unavailable channel.

Top

See Also

Reference

Device Class

IO.Remote Namespace

DeviceMAX_CHANNELS Field

Maximum number of channels each subsystem can support.

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const int MAX_CHANNELS = 128
```

Field Value

Type: Int32

See Also

Reference

Device Class
IO.Remote Namespace

DeviceUnavailable Field

Designator for an unavailable channel.

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public const int Unavailable = -1
```

Field Value

Type: Int32

See Also

Reference

Device Class
IO.Remote Namespace

GPIO Class

Encapsulates remote GPIO pins.

Inheritance Hierarchy

SystemObject IO.RemoteGPIO

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class GPIO : Pin
```

The GPIO type exposes the following members.

Constructors

	Name	Description
	GPIO	Create a remote GPIO pin.

Top

Properties

	Name	Description
	state	Read/Write GPIO state property.

Top

See Also

Reference

IO.Remote Namespace

GPIO Constructor

Create a remote GPIO pin.

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public GPIO(
        Device dev,
        int num,
        Direction dir,
        bool state = false
)
```

Parameters

dev
Type: IO.RemoteDevice
Remote I/O device object.

num
Type: SystemInt32
GPIO pin number: 0 to 127.

dir
Type: IO.Interfaces.GPIODirection
GPIO pin data direction: Input or Output.

state **(Optional)**
Type: SystemBoolean
Initial GPIO output state.

Remarks

Use `Device.GPIO_Create()` instead of this constructor.

See Also

Reference

GPIO Class
IO.Remote Namespace

GPIO Properties

The GPIO type exposes the following members.

Properties

	Name	Description
	state	Read/Write GPIO state property.

Top

See Also

Reference

GPIO Class

IO.Remote Namespace

GPIOstate Property

Read/Write GPIO state property.

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public bool state { get; set; }
```

Property Value

Type: Boolean

Implements

Pinstate

See Also

Reference

GPIO Class
IO.Remote Namespace

I2C Class

Encapsulates remote I²C buses.

Inheritance Hierarchy

SystemObject IO.RemoteI2C

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class I2C : Bus
```

The I2C type exposes the following members.

Constructors

	Name	Description
	I2C	Create a remote I²C bus controller.

Top

Methods

	Name	Description
	Read	Read bytes from an I²C slave device.

	Transaction	Write and read bytes to and from an I^2C slave device.
	Write	Write bytes to an I^2C slave device.

Top

See Also

Reference

IO.Remote Namespace

I2C Constructor

Create a remote I²C bus controller.

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public I2C(
        Device dev,
        int num,
        int speed = 100000
)
```

Parameters

dev
Type: IO.RemoteDevice
Remote I/O device object.

num
Type: SystemInt32
I²C bus number: 0 to 127.

speed **(Optional)**
Type: SystemInt32
I²C bus clock frequency in Hz

Remarks

Use `Device.I2C_Create()` instead of this constructor.

See Also

Reference

I2C Class

IO.Remote Namespace

I2C Methods

The I2C type exposes the following members.

Methods

	Name	Description
	Read	Read bytes from an I^2C slave device.
	Transaction	Write and read bytes to and from an I^2C slave device.
	Write	Write bytes to an I^2C slave device.

Top

See Also

Reference

I2C Class

IO.Remote Namespace

I2CRead Method

Read bytes from an I²C slave device.

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public void Read(
        int slaveaddr,
        byte[] resp,
        int resplen
)
```

Parameters

slaveaddr
Type: SystemInt32
I²C slave address.

resp
Type: SystemByte
Response buffer.

resplen
Type: SystemInt32
Number of bytes to read.

Implements

BusRead(Int32, Byte, Int32)

See Also

Reference

I2C Class

IO.Remote Namespace

I2CTransaction Method

Write and read bytes to and from an I²C slave device.

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public void Transaction(
        int slaveaddr,
        byte[] cmd,
        int cmdlen,
        byte[] resp,
        int resplen,
        int delayus
)
```

Parameters

slaveaddr
Type: SystemInt32
I²C slave address.

cmd
Type: SystemByte
Command buffer.

cmdlen
Type: SystemInt32
Number of bytes to write.

resp

Type: SystemByte
Response buffer.

resplen

Type: SystemInt32
Number of bytes to read.

delayus

Type: SystemInt32
Delay in microseconds between the I^2C write and read cycles.
Allowed values are 0 to 65535 microseconds.

Implements

BusTransaction(Int32, Byte, Int32, Byte, Int32, Int32)

See Also

Reference

I2C Class
IO.Remote Namespace

I2CWrite Method

Write bytes to an I²C slave device.

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public void Write(
        int slaveaddr,
        byte[] cmd,
        int cmdlen
)
```

Parameters

slaveaddr
Type: SystemInt32
I²C slave address.

cmd
Type: SystemByte
Command buffer.

cmdlen
Type: SystemInt32
Number of bytes to write.

Implements

BusWrite(Int32, Byte, Int32)

See Also

Reference

I2C Class

IO.Remote Namespace

MessageTypes Enumeration

Remote I/O protocol message types

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public enum MessageTypes
```

Members

Member name	Value	Description
LOOPBACK_REQUEST	0	Loopback request
LOOPBACK_RESPONSE	1	Loopback response
VERSION_REQUEST	2	Version string request
VERSION_RESPONSE	3	Version string response
CAPABILITY_REQUEST	4	Capability

			string request
	CAPABILITY_RESPONSE	5	Capability string response
	GPIO_PRESENT_REQUEST	6	GPIO pins available request
	GPIO_PRESENT_RESPONSE	7	GPIO pins available response
	GPIO_CONFIGURE_REQUEST	8	GPIO pins configure request
	GPIO_CONFIGURE_RESPONSE	9	GPIO pins configure response
	GPIO_READ_REQUEST	10	GPIO pins read request
	GPIO_READ_RESPONSE	11	GPIO pins read response
	GPIO_WRITE_REQUEST	12	GPIO pins write request

	GPIO_WRITE_RESPONSE	13	GPIO pins write response
	I2C_PRESENT_REQUEST	14	I^2C buses available request
	I2C_PRESENT_RESPONSE	15	I^2C buses available response
	I2C_CONFIGURE_REQUEST	16	I^2C bus configure request
	I2C_CONFIGURE_RESPONSE	17	I^2C bus configure response
	I2C_TRANSACTION_REQUEST	18	I^2C bus transaction request
	I2C_TRANSACTION_RESPONSE	19	I^2C bus transaction response
	SPI_PRESENT_REQUEST	20	SPI slave devices available request
	SPI_PRESENT_RESPONSE	21	SPI slave devices

			available response
	SPI_CONFIGURE_REQUEST	22	SPI slave device configure request
	SPI_CONFIGURE_RESPONSE	23	SPI slave device configure response
	SPI_TRANSACTION_REQUEST	24	SPI bus transaction request
	SPI_TRANSACTION_RESPONSE	25	SPI bus transaction response
	ADC_PRESENT_REQUEST	26	ADC inputs available request
	ADC_PRESENT_RESPONSE	27	ADC inputs available response
	ADC_CONFIGURE_REQUEST	28	ADC input configure request
	ADC_CONFIGURE_RESPONSE	29	ADC input configure

			response
	ADC_READ_REQUEST	30	ADC input read request
	ADC_READ_RESPONSE	31	ADC input read response
	DAC_PRESENT_REQUEST	32	DAC outputs available request
	DAC_PRESENT_RESPONSE	33	DAC outputs available response
	DAC_CONFIGURE_REQUEST	34	DAC input configure request
	DAC_CONFIGURE_RESPONSE	35	DAC input configure response
	DAC_WRITE_REQUEST	36	DAC output write request
	DAC_WRITE_RESPONSE	37	DAC output write response

	PWM_PRESENT_REQUEST	38	PWM outputs available request
	PWM_PRESENT_RESPONSE	39	PWM outputs available response
	PWM_CONFIGURE_REQUEST	40	PWM input configure request
	PWM_CONFIGURE_RESPONSE	41	PWM input configure response
	PWM_WRITE_REQUEST	42	PWM output write request
	PWM_WRITE_RESPONSE	43	PWM output write response

See Also

Reference

IO.Remote Namespace

PeripheralTypes Enumeration

Types of remote peripherals

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public enum PeripheralTypes
```

Members

Member name	Value	Description
ADC	0	A/D inputs
DAC	1	D/A outputs
GPIO	2	GPIO pins
I2C	3	I^2C bus controllers
PWM	4	SPI slave devices
SPI	5	PWM outputs

See Also

Reference

IO.Remote Namespace

PWM Class

Encapsulates remote PWM outputs.

Inheritance Hierarchy

SystemObject IO.RemotePWM

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class PWM : Output
```

The PWM type exposes the following members.

Constructors

	Name	Description
	PWM	Create a remote PWM output.

Top

Properties

	Name	Description
	dutycycle	Write-only property for setting the PWM output duty cycle.

Top

See Also

Reference

IO.Remote Namespace

PWM Constructor

Create a remote PWM output.

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public PWM(
        Device dev,
        int num,
        int freq,
        double duty = 0
)
```

Parameters

dev
Type: IO.RemoteDevice
Remote I/O device object.

num
Type: SystemInt32
PWM output number: 0 to 127.

freq
Type: SystemInt32
PWM pulse frequency in Hz.

duty **(Optional)**
Type: SystemDouble
Initial PWM output duty cycle.

Remarks

Use `Device.PWM_Create()` instead of this constructor.

See Also

Reference

PWM Class

IO.Remote Namespace

PWM Properties

The PWM type exposes the following members.

Properties

	Name	Description
	dutycycle	Write-only property for setting the PWM output duty cycle.

Top

See Also

Reference

PWM Class

IO.Remote Namespace

PWMdutycycle Property

Write-only property for setting the PWM output duty cycle.

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public double dutycycle { set; }
```

Property Value

Type: Double

Implements

Outputdutycycle

See Also

Reference

PWM Class
IO.Remote Namespace

SPI Class

Encapsulates remote SPI slave devices.

Inheritance Hierarchy

SystemObject IO.RemoteSPI

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class SPI : Device
```

The SPI type exposes the following members.

Constructors

	Name	Description
	SPI	Create a remote SPI slave device.

Top

Methods

	Name	Description
	Read	Read bytes from an SPI slave device.

	Transaction	Write and read bytes to and from an SPI slave device.
	Write	Write bytes to an SPI slave device.

Top

See Also

Reference

IO.Remote Namespace

SPI Constructor

Create a remote SPI slave device.

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public SPI(
        Device dev,
        int num,
        int mode,
        int wordsize,
        int speed
)
```

Parameters

dev
Type: IO.RemoteDevice
Remote I/O device object.

num
Type: SystemInt32
SPI slave device number: 0 to 127.

mode
Type: SystemInt32
SPI transfer mode: 0 to 3.

wordsize
Type: SystemInt32
SPI transfer word size: 8, 16, or 32.

speed

Type: SystemInt32

SPI transfer speed in bits per second.

Remarks

Use `Device.SPI_Create()` instead of this constructor.

The actual SPI transfer rate will be the highest realizable rate that does not exceed the value specified in `speed`.

See Also

Reference

SPI Class

IO.Remote Namespace

SPI Methods

The SPI type exposes the following members.

Methods

	Name	Description
	Read	Read bytes from an SPI slave device.
	Transaction	Write and read bytes to and from an SPI slave device.
	Write	Write bytes to an SPI slave device.

Top

See Also

Reference

SPI Class

IO.Remote Namespace

SPIRead Method

Read bytes from an SPI slave device.

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public void Read(
        byte[] resp,
        int resplen
)
```

Parameters

resp
Type: SystemByte
Response buffer.

resplen
Type: SystemInt32
Number of bytes to read: 1 to 60.

Implements

DeviceRead(Byte, Int32)

See Also

Reference

SPI Class
IO.Remote Namespace

SPITransaction Method

Write and read bytes to and from an SPI slave device.

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public void Transaction(
        byte[] cmd,
        int cmdlen,
        byte[] resp,
        int resplen,
        int delayus = 0
)
```

Parameters

cmd
Type: SystemByte
Command buffer.

cmdlen
Type: SystemInt32
Number of bytes to write: 0 to 57.

resp
Type: SystemByte
Response buffer.

resplen
Type: SystemInt32
Number of bytes to read: 0 to 60.

delayus **(Optional)**

Type: SystemInt32

Delay in microseconds between write and read operations: 0 to 65535.

Implements

DeviceTransaction(Byte, Int32, Byte, Int32, Int32)

See Also

Reference

SPI Class

IO.Remote Namespace

SPIWrite Method

Write bytes to an SPI slave device.

Namespace: IO.Remote
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public void Write(
        byte[] cmd,
        int cmdlen
)
```

Parameters

cmd
Type: SystemByte
Command buffer.

cmdlen
Type: SystemInt32
Number of bytes to write: 1 to 57.

Implements

DeviceWrite(Byte, Int32)

See Also

Reference

SPI Class
IO.Remote Namespace

IO.Remote.mikroBUS Namespace

Mikroelektronika mikroBUS (https://www.mikroe.com/mikrobus) Remote I/O protocol Server and Socket Services

Classes

	Class	Description
	Shield	Encapsulates mikroBUS shields on Remote I/O Protocol servers providing mikroBUS sockets).
	Socket	Encapsulates mikroBUS sockets.

Enumerations

	Enumeration	Description
	ShieldKinds	Supported mikroBUS shields.

Shield Class

Encapsulates mikroBUS shields on Remote I/O Protocol servers providing mikroBUS sockets).

Inheritance Hierarchy

SystemObject IO.Remote.mikroBUSShield

Namespace: IO.Remote.mikroBUS
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public static class Shield
```

The Shield type exposes the following members.

Properties

	Name	Description
	kind	Returns the kind of mikroBUS shield that is installed on the Remote I/O Protocol server, as obtained from the `SHIELDNAME` environment variable.

Top

Fields

	Name	Description
	I2CBus	Shared I^2C bus that is common to all sockets on this shield.

Top

See Also

Reference

IO.Remote.mikroBUS Namespace

Shield Properties

The Shield type exposes the following members.

Properties

	Name	Description
	kind	Returns the kind of mikroBUS shield that is installed on the Remote I/O Protocol server, as obtained from the `SHIELDNAME` environment variable.

Top

See Also

Reference

Shield Class

IO.Remote.mikroBUS Namespace

Shieldkind Property

Returns the kind of mikroBUS shield that is installed on the Remote I/O Protocol server, as obtained from the `SHIELDNAME` environment variable.

Namespace: IO.Remote.mikroBUS
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# **VB** **F#** Copy

```
public static ShieldKinds kind { get; }
```

Property Value

Type: ShieldKinds

See Also

Reference

Shield Class
IO.Remote.mikroBUS Namespace

Shield Fields

The Shield type exposes the following members.

Fields

	Name	Description
	I2CBus	Shared I^2C bus that is common to all sockets on this shield.

Top

See Also

Reference

Shield Class

IO.Remote.mikroBUS Namespace

ShieldI2CBus Field

Shared I^2C bus that is common to all sockets on this shield.

Namespace: IO.Remote.mikroBUS
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public static Bus I2CBus
```

Field Value

Type: Bus

See Also

Reference

Shield Class
IO.Remote.mikroBUS Namespace

ShieldKinds Enumeration

Supported mikroBUS shields.

Namespace: IO.Remote.mikroBUS
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public enum Kinds
```

Members

Member name	Value	Description
Clicker	0	Mikroelektronika STM32F4 Clicker with MUNTS-0011 Remote I/O Server firmware, with one mikroBUS socket.
PiClick1	1	Raspberry Pi with Mikroelektronika Pi Click Shield MIKROE-1512/1513 for 26-pin expansion header, with one mikroBUS socket (Obsolete.)

	PiClick2	2	Raspberry Pi with Mikroelektronika Pi 2 Click Shield MIKROE-1879 for 40-pin expansion header, with two mikroBUS sockets.
	PiClick3	3	Mikroelektronika Pi 3 Click Shield MIKROE-2756 for 40-pin expansion header, with selectable on-board A/D converter and two mikroBUS sockets.
	PocketBeagle	4	PocketBeagle with female headers on top, with two mikroBUS sockets.
	Unknown	2147483647	No known mikroBUS shield installed.

See Also

Reference

IO.Remote.mikroBUS Namespace

Socket Class

Encapsulates mikroBUS sockets.

Inheritance Hierarchy

SystemObject IO.Remote.mikroBUSSocket

Namespace: IO.Remote.mikroBUS
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public class Socket
```

The Socket type exposes the following members.

Constructors

	Name	Description
	Socket	Constructor for a single mikroBUS socket.

Top

Properties

	Name	Description
	AIN	Returns the ADC input designator for AN.

	AN	Returns the GPIO pin designator for AN.
	CS	Returns the GPIO pin designator for CS.
	I2CBus	Returns the I^2C bus designator for this socket.
	INT	Returns the GPIO pin designator for INT.
	MISO	Returns the GPIO pin designator for MISO.
	MOSI	Returns the GPIO pin designator for MOSI.
	PWM	Returns the GPIO pin designator for PWM.
	PWMOut	Returns the PWM output designator for PWM.
	RST	Returns the GPIO pin designator for RST.
	RX	Returns the GPIO pin designator for RX.
	SCK	Returns the GPIO pin designator for SCK.
	SCL	Returns the GPIO pin designator for SCL.
	SDA	Returns the GPIO pin designator for SDA.
	SPIDev	Returns the SPI device designator for

		this socket.
	TX	Returns the GPIO pin designator for TX.

Top

See Also

Reference

IO.Remote.mikroBUS Namespace

Socket Constructor

Constructor for a single mikroBUS socket.

Namespace: IO.Remote.mikroBUS
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public Socket(
        int num,
        ShieldKinds shield = ShieldKinds.Unknown
)
```

Parameters

num
Type: SystemInt32
Socket number.

shield **(Optional)**
Type: IO.Remote.mikroBUSShieldKinds
mikroBUS shield kind. Zero indicates automatic detection using the `Shield.kind` property.

See Also

Reference

Socket Class
IO.Remote.mikroBUS Namespace

Socket Properties

The Socket type exposes the following members.

Properties

	Name	Description
	AIN	Returns the ADC input designator for AN.
	AN	Returns the GPIO pin designator for AN.
	CS	Returns the GPIO pin designator for CS.
	I2CBus	Returns the I^2C bus designator for this socket.
	INT	Returns the GPIO pin designator for INT.
	MISO	Returns the GPIO pin designator for MISO.
	MOSI	Returns the GPIO pin designator for MOSI.
	PWM	Returns the GPIO pin designator for PWM.
	PWMOut	Returns the PWM output designator for PWM.

	RST	Returns the GPIO pin designator for RST.
	RX	Returns the GPIO pin designator for RX.
	SCK	Returns the GPIO pin designator for SCK.
	SCL	Returns the GPIO pin designator for SCL.
	SDA	Returns the GPIO pin designator for SDA.
	SPIDev	Returns the SPI device designator for this socket.
	TX	Returns the GPIO pin designator for TX.

Top

See Also

Reference

Socket Class

IO.Remote.mikroBUS Namespace

SocketAIN Property

Returns the ADC input designator for AN.

Namespace: IO.Remote.mikroBUS
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public int AIN { get; }
```

Property Value

Type: Int32

See Also

Reference

Socket Class
IO.Remote.mikroBUS Namespace

SocketAN Property

Returns the GPIO pin designator for AN.

Namespace: IO.Remote.mikroBUS
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public int AN { get; }
```

Property Value

Type: Int32

See Also

Reference

Socket Class
IO.Remote.mikroBUS Namespace

SocketCS Property

Returns the GPIO pin designator for CS.

Namespace: IO.Remote.mikroBUS
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public int CS { get; }
```

Property Value

Type: Int32

See Also

Reference

Socket Class
IO.Remote.mikroBUS Namespace

SocketI2CBus Property

Returns the I^2C bus designator for this socket.

Namespace: IO.Remote.mikroBUS
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public int I2CBus { get; }
```

Property Value

Type: Int32

See Also

Reference

Socket Class
IO.Remote.mikroBUS Namespace

SocketINT Property

Returns the GPIO pin designator for INT.

Namespace: IO.Remote.mikroBUS
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public int INT { get; }
```

Property Value

Type: Int32

See Also

Reference

Socket Class
IO.Remote.mikroBUS Namespace

SocketMISO Property

Returns the GPIO pin designator for MISO.

Namespace: IO.Remote.mikroBUS
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public int MISO { get; }
```

Property Value

Type: Int32

See Also

Reference

Socket Class
IO.Remote.mikroBUS Namespace

SocketMOSI Property

Returns the GPIO pin designator for MOSI.

Namespace: IO.Remote.mikroBUS
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public int MOSI { get; }
```

Property Value

Type: Int32

See Also

Reference

Socket Class
IO.Remote.mikroBUS Namespace

SocketPWM Property

Returns the GPIO pin designator for PWM.

Namespace: IO.Remote.mikroBUS
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public int PWM { get; }
```

Property Value

Type: Int32

See Also

Reference

Socket Class
IO.Remote.mikroBUS Namespace

SocketPWMOut Property

Returns the PWM output designator for PWM.

Namespace: IO.Remote.mikroBUS
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

Copy

```
public int PWMOut { get; }
```

Property Value

Type: Int32

See Also

Reference

Socket Class
IO.Remote.mikroBUS Namespace

SocketRST Property

Returns the GPIO pin designator for RST.

Namespace: IO.Remote.mikroBUS
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public int RST { get; }
```

Property Value

Type: Int32

See Also

Reference

Socket Class
IO.Remote.mikroBUS Namespace

SocketRX Property

Returns the GPIO pin designator for RX.

Namespace: IO.Remote.mikroBUS
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public int RX { get; }
```

Property Value

Type: Int32

See Also

Reference

Socket Class
IO.Remote.mikroBUS Namespace

SocketSCK Property

Returns the GPIO pin designator for SCK.

Namespace: IO.Remote.mikroBUS
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public int SCK { get; }
```

Property Value

Type: Int32

See Also

Reference

Socket Class
IO.Remote.mikroBUS Namespace

SocketSCL Property

Returns the GPIO pin designator for SCL.

Namespace: IO.Remote.mikroBUS
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public int SCL { get; }
```

Property Value

Type: Int32

See Also

Reference

Socket Class
IO.Remote.mikroBUS Namespace

SocketSDA Property

Returns the GPIO pin designator for SDA.

Namespace: IO.Remote.mikroBUS
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F# Copy

```
public int SDA { get; }
```

Property Value

Type: Int32

See Also

Reference

Socket Class
IO.Remote.mikroBUS Namespace

SocketSPIDev Property

Returns the SPI device designator for this socket.

Namespace: IO.Remote.mikroBUS
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

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```
public int SPIDev { get; }
```

Property Value

Type: Int32

See Also

Reference

Socket Class
IO.Remote.mikroBUS Namespace

SocketTX Property

Returns the GPIO pin designator for TX.

Namespace: IO.Remote.mikroBUS
Assembly: libremoteio (in libremoteio.dll) Version: 2.2021.137.1

Syntax

C# VB F#

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```
public int TX { get; }
```

Property Value

Type: Int32

See Also

Reference

Socket Class
IO.Remote.mikroBUS Namespace

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