

# Hardware Monitor UI

## Quick Guide

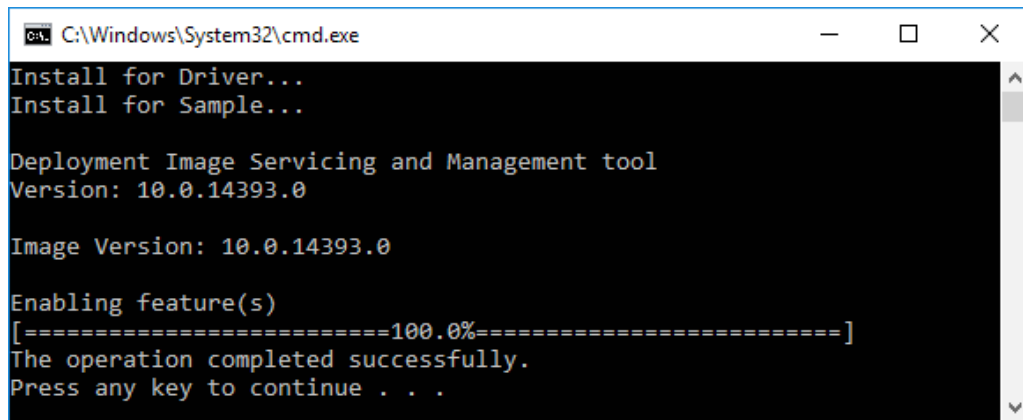
# A

## Software Package

### A.1 Installation

Specific drivers are required to be installed before initiating Vecow HW monitor UI. Please follow below instructions for driver installation.

Step: Run batch file “Win10\_64.bat” as Administrator to install Vecow driver and Framework 3.5.



```
C:\Windows\System32\cmd.exe
Install for Driver...
Install for Sample...

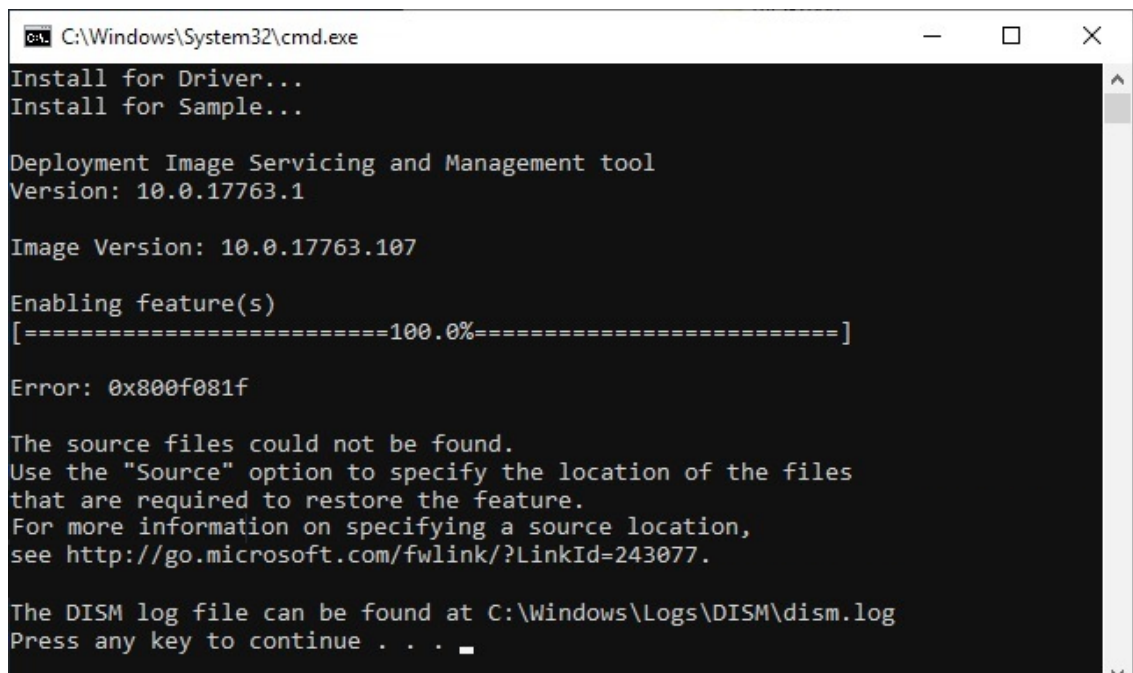
Deployment Image Servicing and Management tool
Version: 10.0.14393.0

Image Version: 10.0.14393.0

Enabling feature(s)
[=====100.0%=====]
The operation completed successfully.
Press any key to continue . . .
```

If error 0x800f081f occurs, please install Framework 3.5 before running Win10\_64.bat. Please find below URL for framework 3.5 installation.

<https://www.microsoft.com/en-US/download/details.aspx?id=25150>



```
C:\Windows\System32\cmd.exe
Install for Driver...
Install for Sample...

Deployment Image Servicing and Management tool
Version: 10.0.17763.1

Image Version: 10.0.17763.107

Enabling feature(s)
[=====100.0%=====]

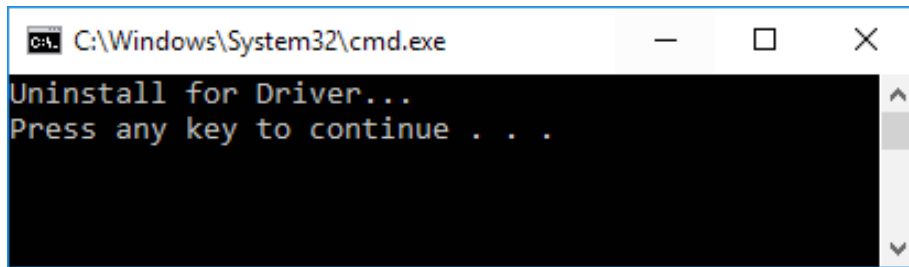
Error: 0x800f081f

The source files could not be found.
Use the "Source" option to specify the location of the files
that are required to restore the feature.
For more information on specifying a source location,
see http://go.microsoft.com/fwlink/?LinkId=243077.

The DISM log file can be found at C:\Windows\Logs\DISM\dism.log
Press any key to continue . . .
```

## A.2 Uninstall

Step: Run batch file “Uninstall\_64.bat” as administrator to uninstall Vecow driver.

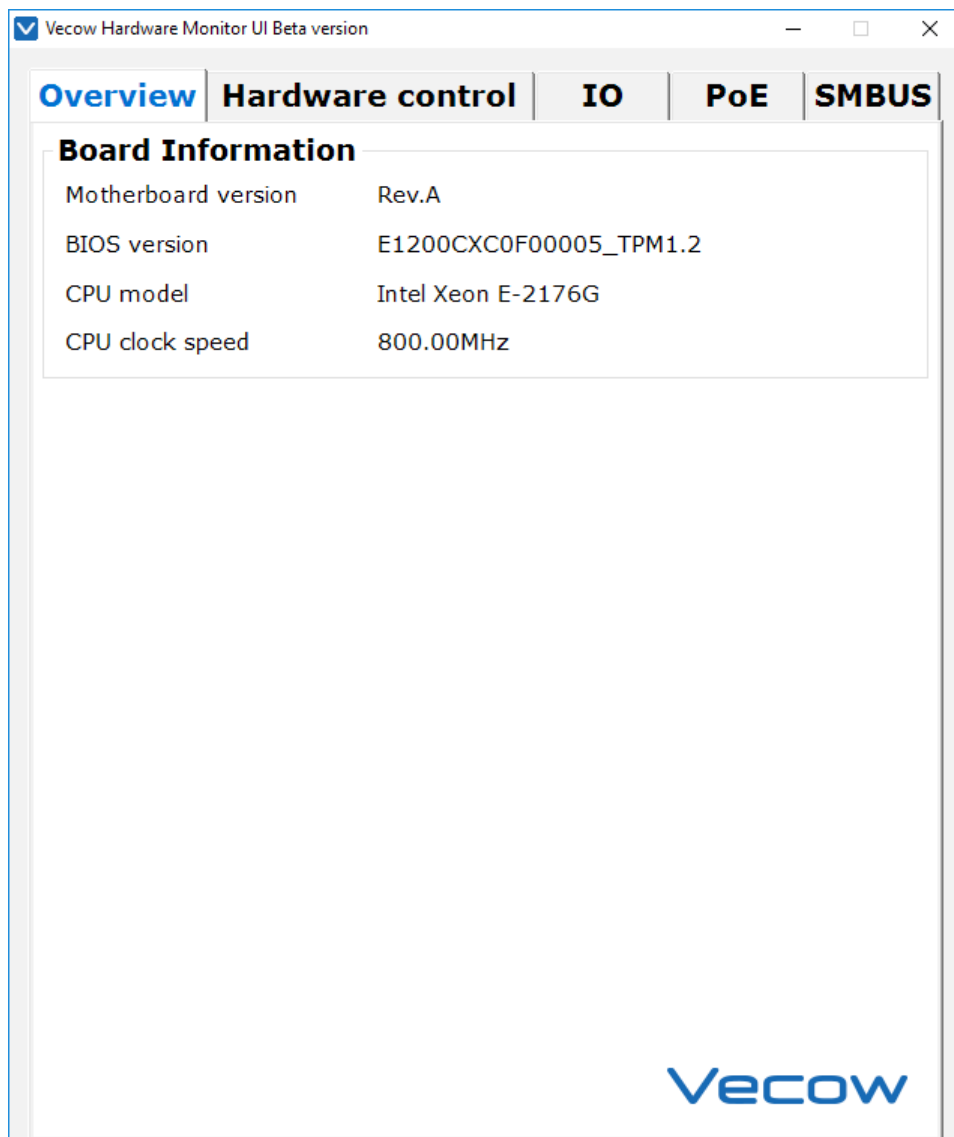


# B

## Function Table

### B.1 Overview

Overview Table provides board information.

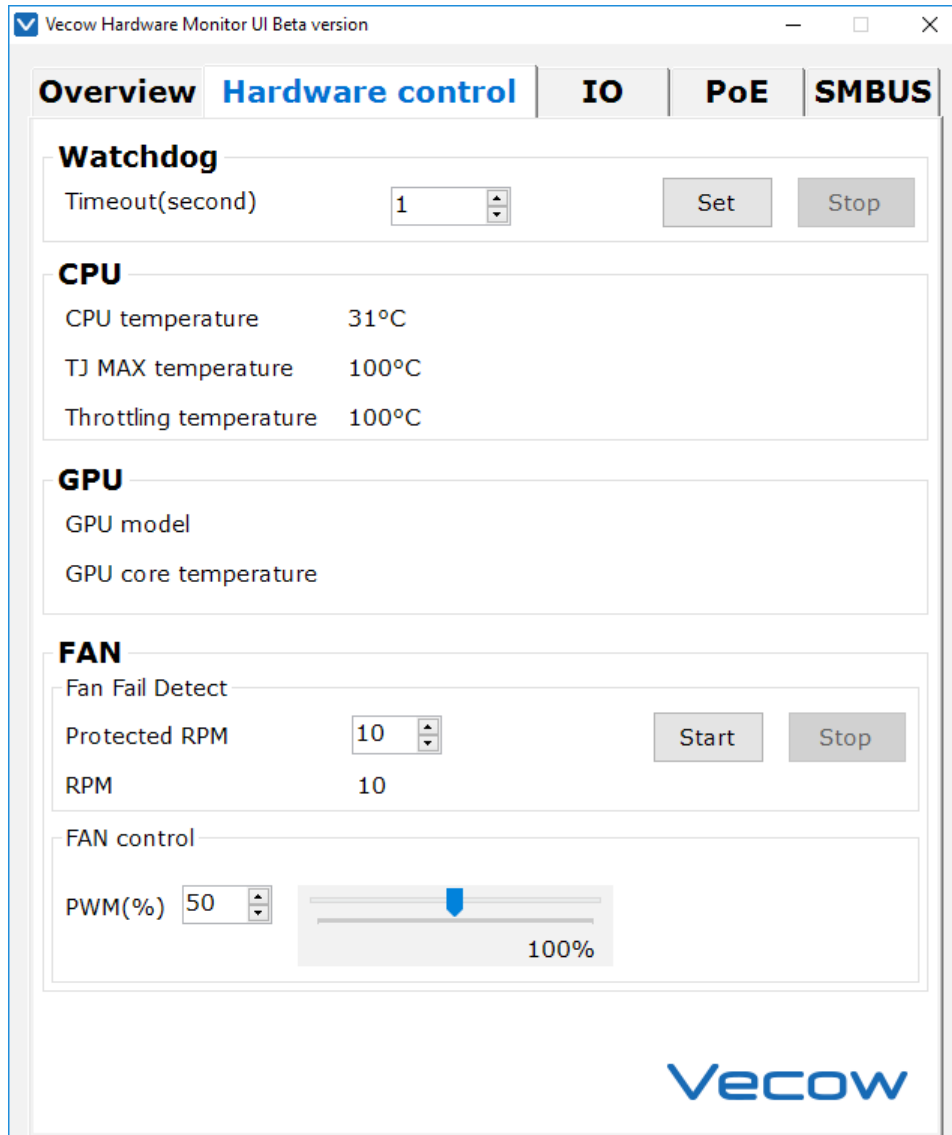


#### B.1.1 Board Information

Board Information table provides the board / BIOS version and pre-installed CPU report.

## B.2 Hardware control

Hardware control table provides CPU / GPU information report and watch dog / RPM function set up.



### B.2.1 Watchdog

Watchdog timer provides ability to detect and recover from computer malfunctions. The scope of time range can be set up from 1 to 3932100 seconds.

#### **Set button**

Set up the timeout value and click the bottom to start the countdown.

#### **Stop button**

Reset Watchdog value.

## B.2.2 CPU

### ***CPU temperature***

Current CPU DTS value.

### ***TjMAX temperature***

The maximum allowable temperature the cores can reach.

### ***Throttling temperature***

The criteria temperature that the processor will downside the performance for cooling.

## B.2.3 GPU

### ***GPU model***

GPU information.

### ***GPU core temperature***

Current GPU DTS value.

## B.2.4 FAN

### ***Fan Fail Detect***

The system will initiate the shutdown process in one second after the value of RPM is under protected RPM for more than one minute.

### ***Protected RPM***

The criteria that prevent the Fan speed from overloaded.

### ***RPM***

Current Fan speed (The value is updated in every 6 seconds).

### ***Start button***

Initiate Fan speed detection.

### ***Stop button***

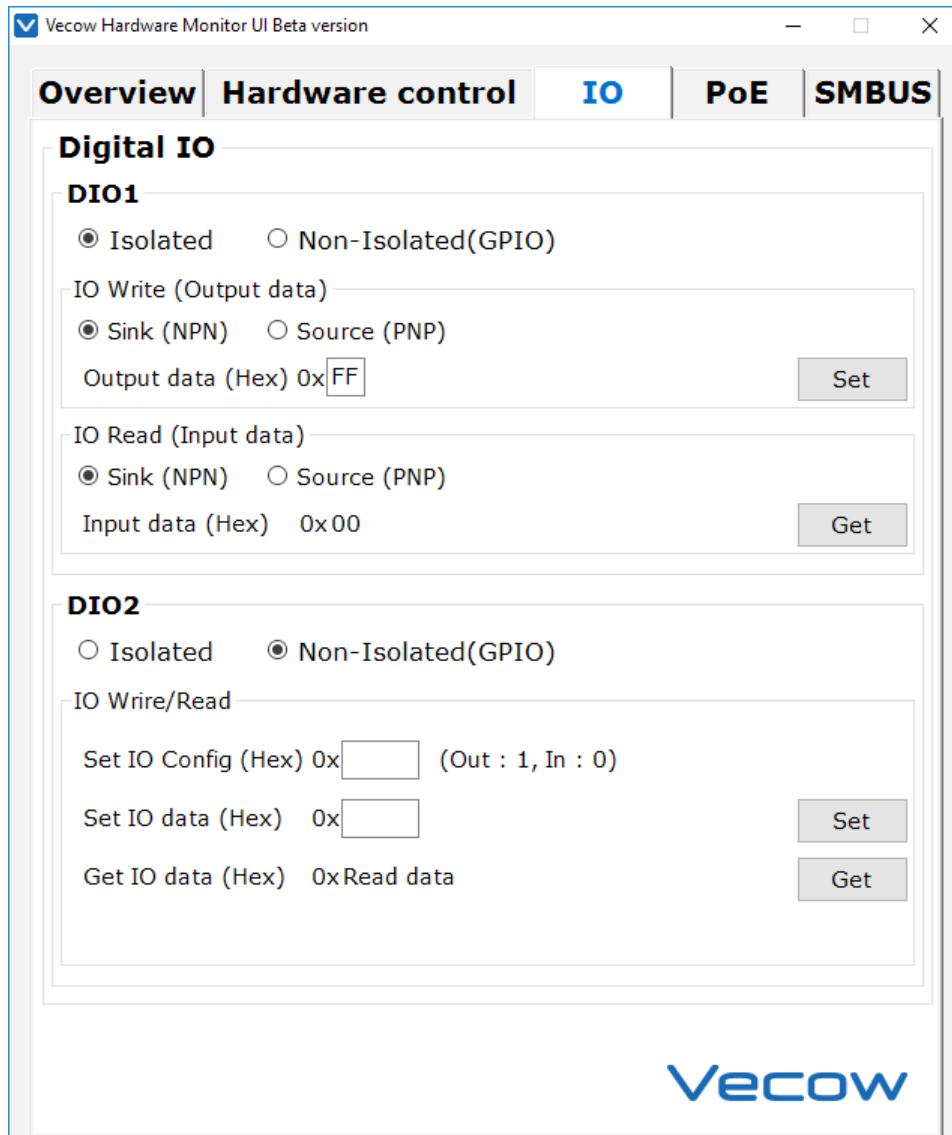
Interrupt Fan speed detection.

### ***Fan Control***

SmartGuardian Automatic Mode provides 256 steps of PWM control.

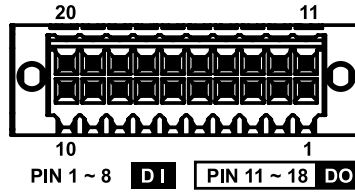
## B.3 IO

IO table provides Digital IO function.



### DIO definition

16-bit DIO (Isolated / Non-Isolated) 20-pin terminal block connector. Isolated DIO pins are fixed by Hardware design that cannot change in / out direction in runtime process.

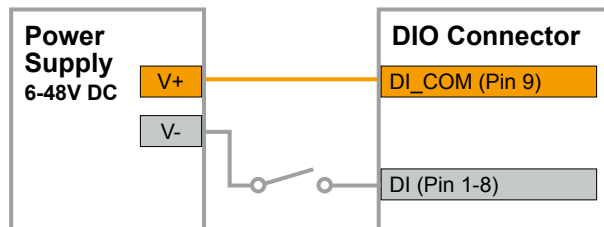


Pin No.	Isolated DIO Definition	GPIO Definition	Pin No.	Isolated DIO Definition	GPIO Definition
1	DI 0	GPIO 0	11	DO 0	GPIO 8
2	DI 1	GPIO 1	12	DO 1	GPIO 9
3	DI 2	GPIO 2	13	DO 2	GPIO 10
4	DI 3	GPIO 3	14	DO 3	GPIO 11
5	DI 4	GPIO 4	15	DO 4	GPIO 12
6	DI 5	GPIO 5	16	DO 5	GPIO 13
7	DI 6	GPIO 6	17	DO 6	GPIO 14
8	DI 7	GPIO 7	18	DO 7	GPIO 15
9	DI_COM	NC	19	DIO_GND	GPIO_GND
10	DIO_GND	GPIO_GND	20	External VDC	NC

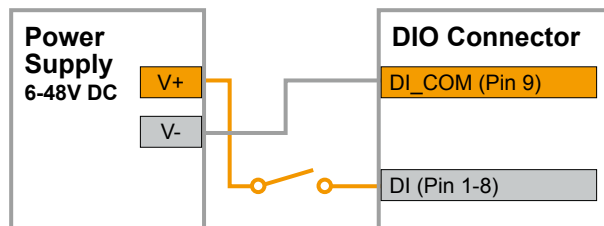
### Isolated DIO Signal Circuit

DI reference circuit :

Sink Mode  
(NPN)



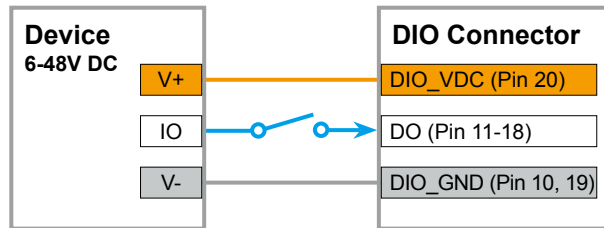
Source Mode  
(PNP)



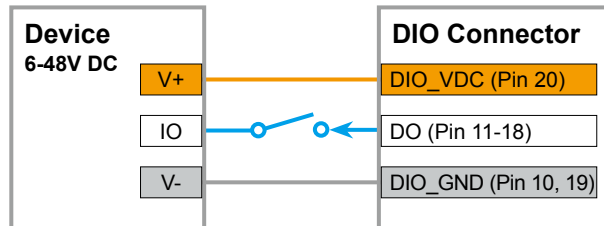


DO reference circuit :

Sink Mode  
(NPN, Default)



Source Mode  
(PNP)



### B.3.1 Isolated DIO

#### *Sink (NPN) / Source (PNP) radio button*

Select Sink (NPN) / Source (PNP) MODE.

#### *Set button*

DIO configuration must be defined before DO output condition.

#### *Get button*

Define DIO configuration to get DI input condition.

#### *Output data (Hex)*

DO output condition is defined by a hexadecimal bitmask - on / off.  
Range: 0x00~0xFF, 1: High; 0: Low.

#### *Input data (Hex)*

DI input condition is defined by a hexadecimal bitmask - on / off.  
Range: 0x00~0xFF, 1: High; 0: Low.

#### *Example*

Define Output data 0x00 LED all bright on sink(NPN) mode.

Define Output data 0xFF LED all bright on source(PNP) mode.

Loopback test (connect pin.1-11 ~ pin.10-20):

Define sink(NPN) mode output and Get source(PNP) mode input.

### B.3.2 Non-Isolated Digital IO (GPIO)

#### ***Set button***

Define GPIO configuration to get GPIO output condition.

#### ***Get button***

Define GPIO configuration to get GPIO input condition.

#### ***IO Configuration (Hex)***

GPIO In / Out, the pin is defined by a hexadecimal bitmask.

Range: 0x0000~0xFFFF, 1: Out; 0: In.

#### ***Set IO data (Hex)***

GPIO output condition is defined by a hexadecimal bitmask - on / off.

Range: 0x0000~0xFFFF, 1: High; 0: Low.

#### ***Get IO data (Hex)***

GPIO input condition is defined by a hexadecimal bitmask - on / off.

Range: 0x0000~0xFFFF, 1: High; 0: Low.

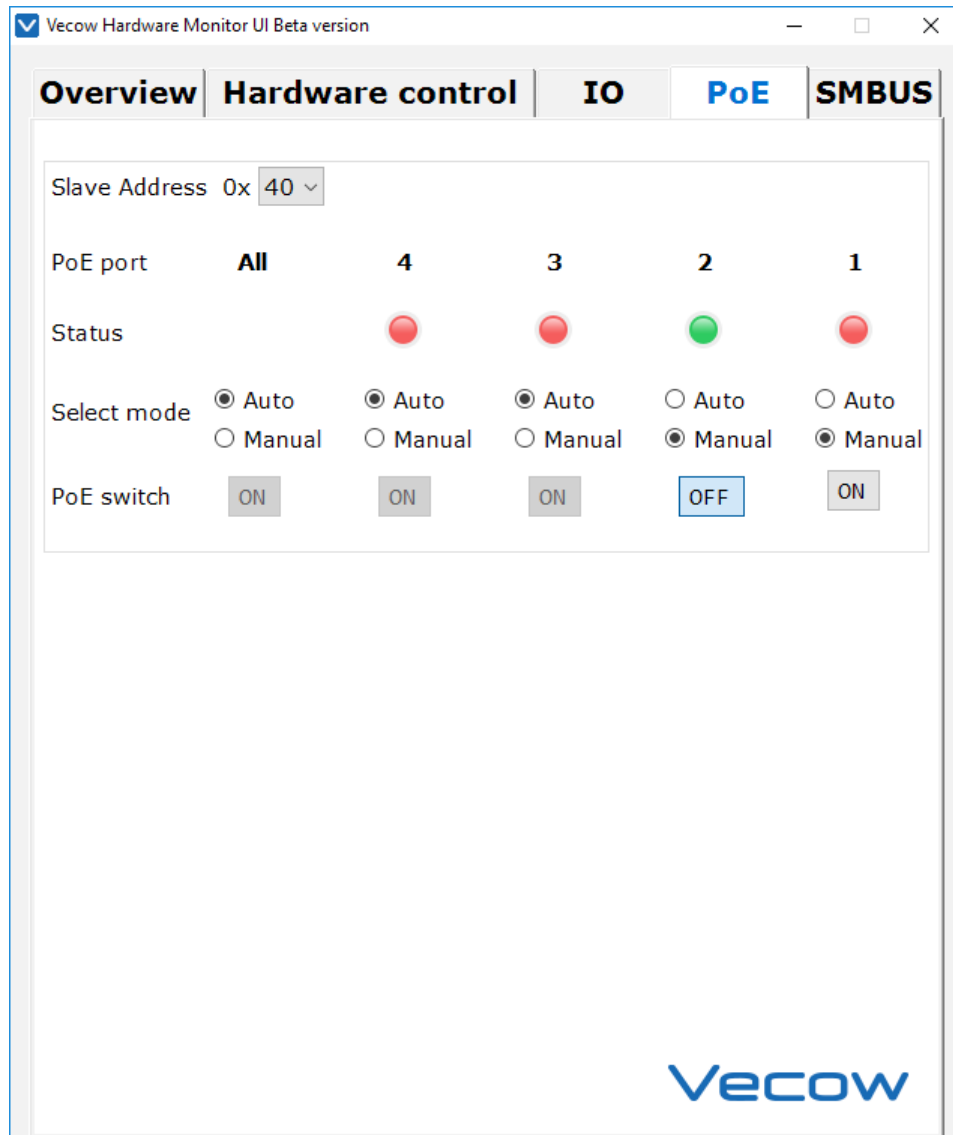
#### ***Example***

Loopback test (connect pin.1-11 ~ pin.10-20):

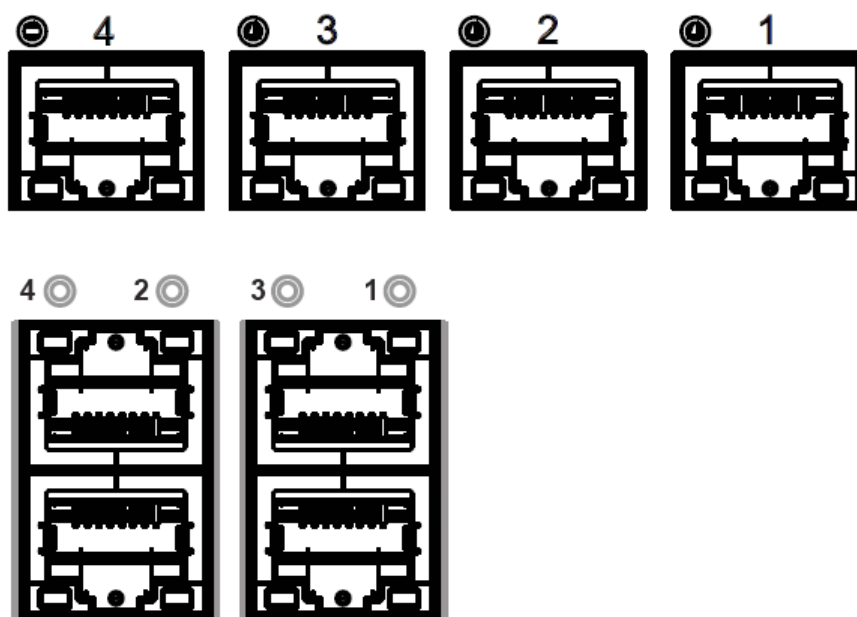
Set IO data and Get IO data.

## B.4 PoE Control

PoE control table provides PoE on/off switch.



### POE definition



Port No.	Definition	Port No.	Definition
1	POE 0	3	POE 2
2	POE 1	4	POE 3

### Slave Address

Range: 0x40~0x5E (16 address).  
Auto detect all available PoE.

### Status

Green: PoE on; Red: PoE off.

### Select mode

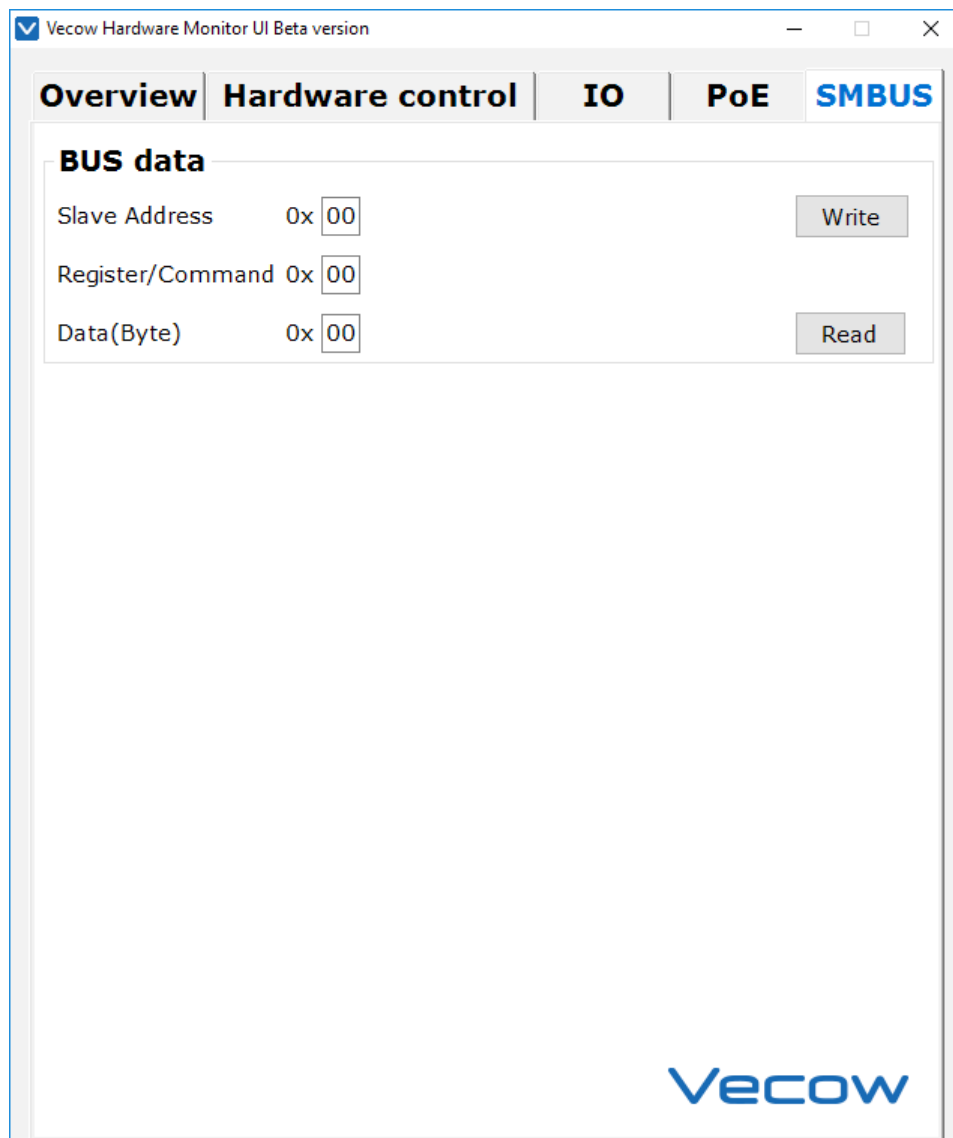
Auto: Auto detect Power device.  
Manual: Turn on/off PoE by user.

### PoE switch

ON: Turn on PoE for manual mode.  
OFF: Turn off PoE for manual mode.

## B.5 SMBUS

SMBUS table provides BUS data accessed on SMBUS.



## B.5.1 BUS data

BUS data function supports only byte transmission.

### *Slave Address*

The SMBUS slave device address is expected in 8-bit hex format with the 7-bit address in the upper seven bits and the lowest bit set as read (1) / write (0) bit accordingly.

### *Register/Command*

The SMBUS command enables access to SMBUS devices.

### *Data*

Support transfer type: Read/Write Command Byte.

### *SMBUS control PoE*

PoE slave address

Range: 0x40~0x5E (16 address).

Set 4-port PoE Configuration for auto mode

Register 0x12, Write 0xFF.

Register 0x13, Write 0xF0.

Register 0x14, Write 0xFF.

Set 4-port PoE Configuration for manual mode and trun on/off PoE port:

Register 0x12, Write 0x55.

Register 0x13, Write 0x00.

Register 0x14, Write 0x00.

Register 0x19, Write 0x0F/0xF0.