

# TCS US5182 Air Handling Unit Controller User Guide

Home » TCS » TCS US5182 Air Handling Unit Controller User Guide 🖔







Configuration Guide
Air Handling Unit Controller
US5182

# Configuration

# **Contents**

- 1 Introduction
- **2 Getting Started**
- 3 Using Insight
- 4 Documents / Resources
  - 4.1 References

# Introduction

Congratulations on choosing the TCS US5182 Air Handling Unit Controller! The US5182 is a sophisticated, multi-

function HVAC Air Handling Unit controller which must be configured to interact with your system after you have completed the installation, wiring, and basic setup. While this configuration process can be accomplished several different ways, the preferred method is to connect a laptop computer directly to the US5182 via a USB cable, and use TCS Insight software to program the unit. This manual will guide you through each step you must take when using this method.

Refer to the US5182 Installation Manual for instructions on installing and wiring the unit into your system. Refer to the US5182 Quick Setup Guide for instructions on the basic setup of the unit via the unit's LCD screen. If you have questions regarding your US5182, do not hesitate to contact TCS Technical Support at 800-288-9383, ext. 2.

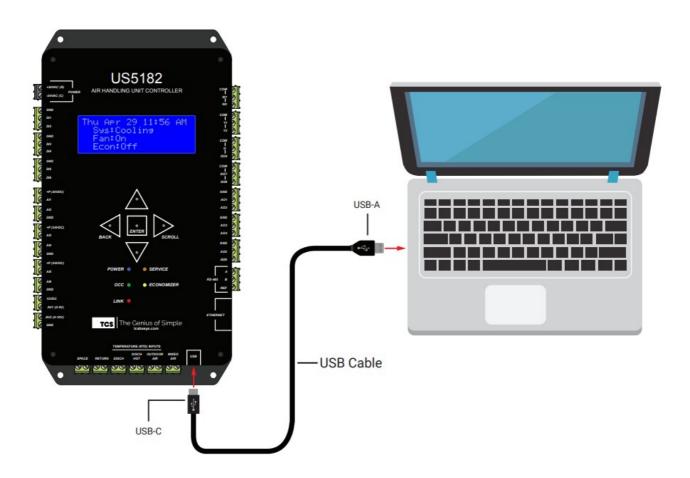
Our Technical Support Department hours are Monday - Friday, 7:00 a.m. to 7:00 p.m. (CST).

## **Getting Started**

To configure the US5182, you will need:

- A laptop computer running Windows 7 or later.
- A USB-A to USB-C cable (NOT a mini-USB or micro-USB cable)
- TCS Insight configuration software version 2.5.0.7 or later, which can be downloaded from the TCS website. Earlier versions of Insight will not allow you to configure the US5182.

#### **US5182-to-Laptop Connection**



## **Using Insight**

TCS Insight software allows you to configure available settings for the different types of inputs and outputs of the US5182. Each time you launch Insight, you must complete the following tasks before programming the US5182:

• Identify the COM port you will be using to communicate with the US5182

- Assign a unique device address to the US5182 (if more than one controller is connected to your system)
- Populate the I/O tabs under the Programming menu

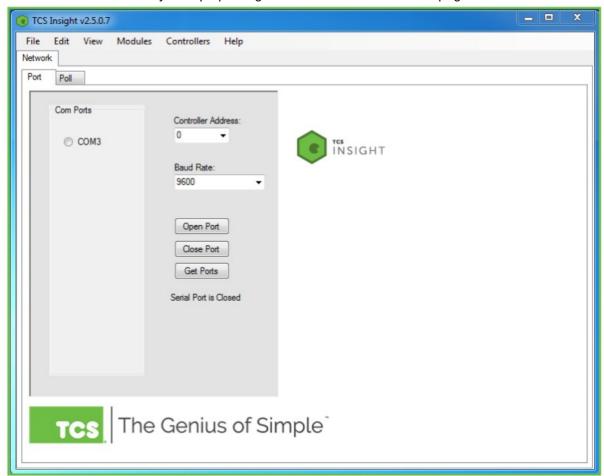
**NOTE:** TCS Insight software is a powerful service tool that works with a number of different devices and performs other functions which are beyond the scope of this manual. We recommend following only the steps described herein, as other steps may impact other controllers or your network.

### **Network Setup**

**STEP 1** With the US5182 disconnected from your laptop, launch Insight. You will see the following screen: You may see no COM ports or several of them (e.g., COM3, in this example). You can ignore these ports.

STEP 2 Power up the US5182 (refer to the US5182 Installation Manual for more information).

STEP 3 Connect the US5182 to your laptop using the USB cable described on page 3.

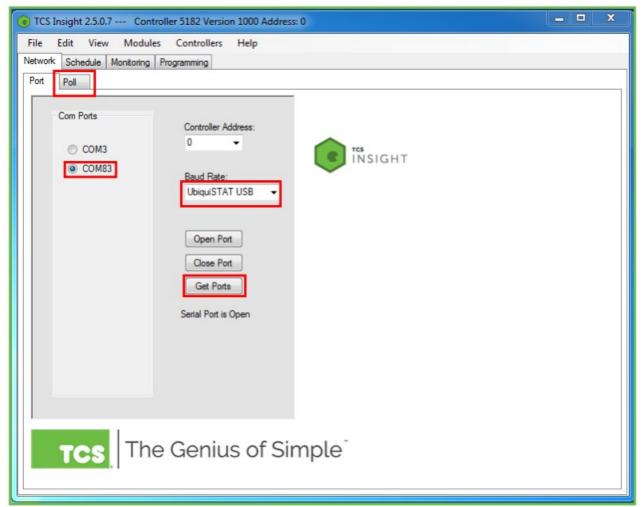


**STEP 4** Click on the Get Ports button. You will see a new COM port appear in the window (e.g., COM83). This is the port your US5182 is using to communicate with the laptop.

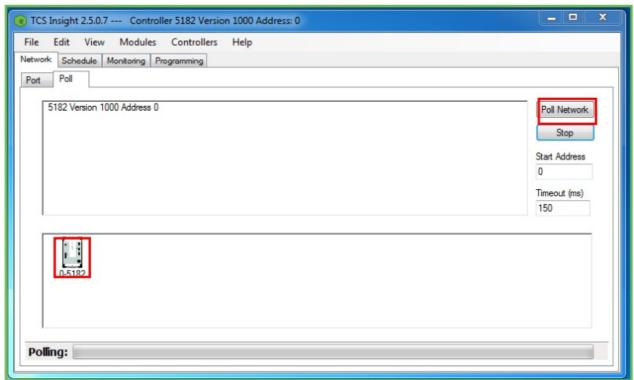
STEP 5 Under the Baud Rate list, select UbiquiSTAT USB.

**STEP 6** Open the new COM port by clicking on its radio button.

STEP 7 Click on the Poll tab near the top of the window.



**STEP 8** In the Poll tab window, click on the Poll Network button. After a few seconds, an icon representing the US5182 will appear. After the US5182 device icon appears, you can click on the Stop button or the US5182 icon to cease polling the network.

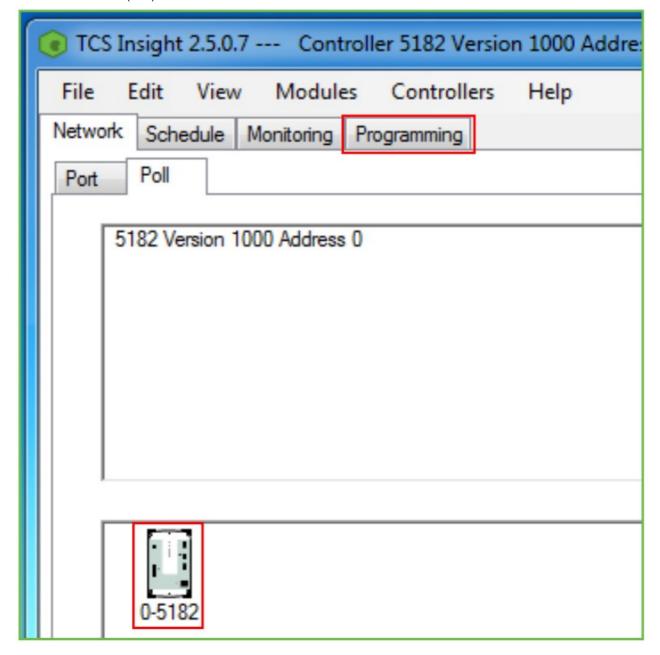


**NOTE:** When using a USB-C cable for communicating with the US5182, the address will always be zero. **Programming the US5182** 

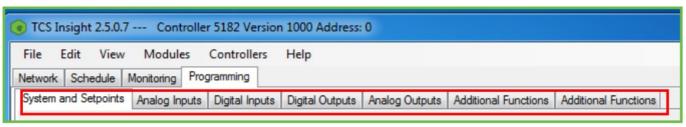
**STEP 1** Click on the US5182 device icon to bring up the device tabs in the main window (this can take several seconds).

STEP 2 Click on the Programming tab in the main window. This will open up a new set of tabs for:

- · System and Setpoints
- · Analog Inputs
- · Digital Inputs
- · Digital Outputs
- · Analog Outputs
- Additional Functions (two)



**STEP 3** After expanding the Programming tab, click on each of the seven sub-tabs to populate their data fields. Allow several seconds for the US5182 to populate each sub-tab (the window will "blink" when populated.) Do this for every sub-tab, even if you are not going to configure all inputs/ outputs or functions, as some data points are interrelated.



## **Systems and Setpoints**

Under the System and Setpoints tab you can enable or monitor system settings for the following:

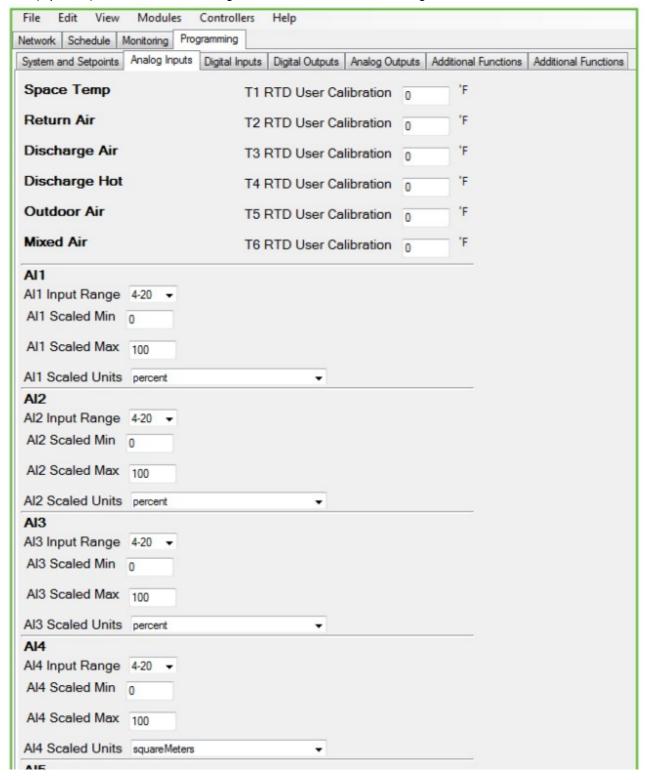
- Hot Deck/Cold Deck
- Discharge Zone Control
- Setpoints
- Smart Recovery
- Dehumidification
- Space Control
- System

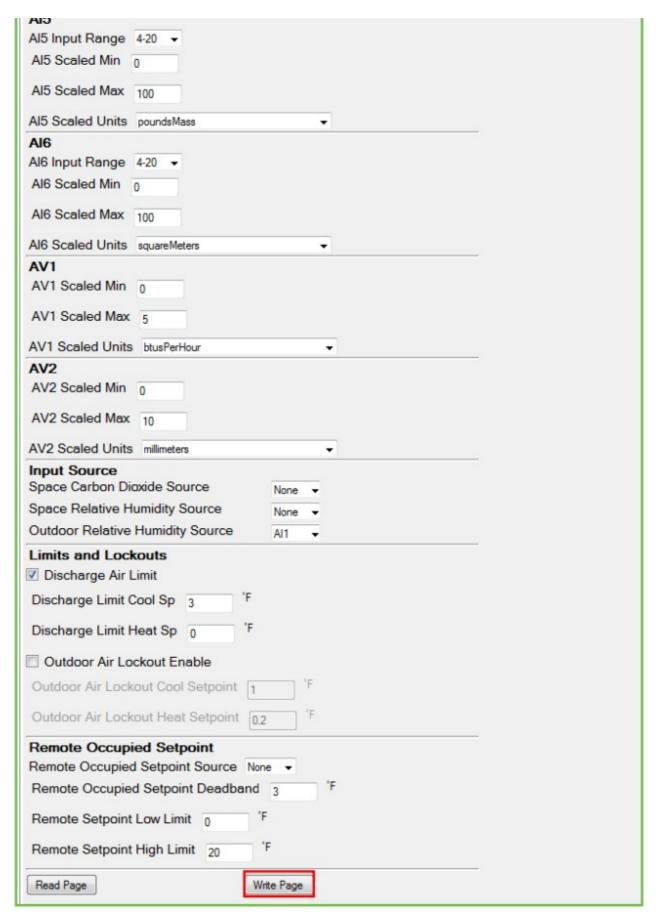
**STEP 1** Click on the desired section to activate the relevant settings and program the fields.

**NOTE:** Discharge Zone Control should be enabled only if the US5182 is being used as a master controller for a Ubiquity subsystem with a QD2040 or QD3041 building controller.

STEP 2 After programming the System and Setpoints, click on the Write Page button to save the settings.

STEP 3 (Optional) Click on the Read Page button to make sure all settings were entered.





### **Analog Inputs**

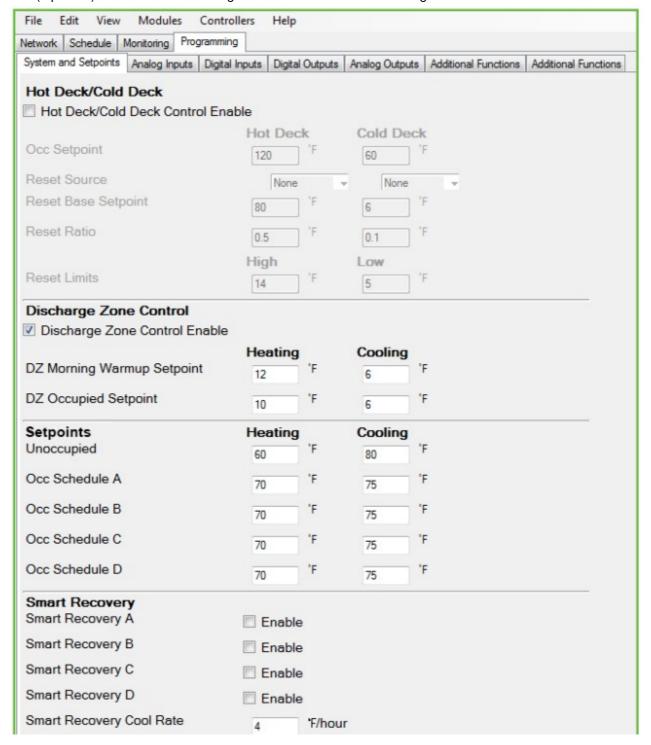
Under the Analog Inputs tab, you can enable or monitor settings for the following:

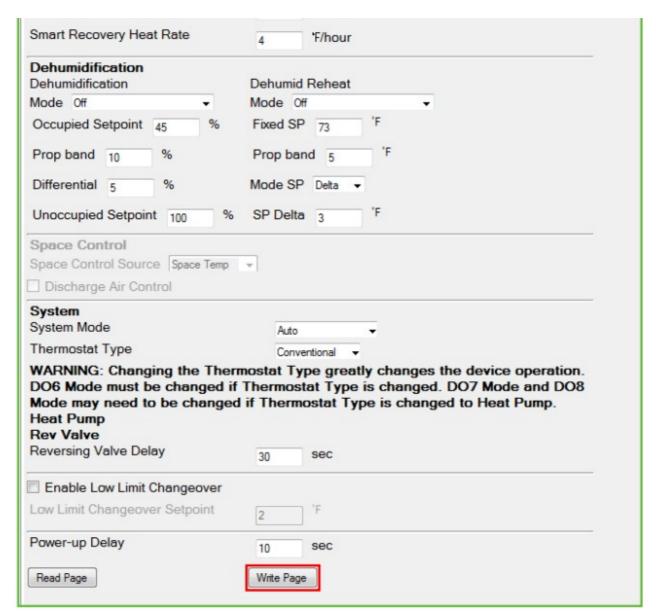
- Space Temperature
- Return Air
- · Discharge Air
- · Discharge Hot

- Outdoor Air
- · Mixed Air

The following configurable values are available:

- Al 1 − 6
- AV 1 − 2
- · Input Source
- · Limits and Lockouts
- · Remote Occupied Setpoint
- **STEP 1** Click on the desired field to program the relevant settings.
- STEP 2 After programming the Analog Inputs, click on the Write Page button to save the settings.
- STEP 3 (Optional) Click on the Read Page button to make sure all settings were entered.

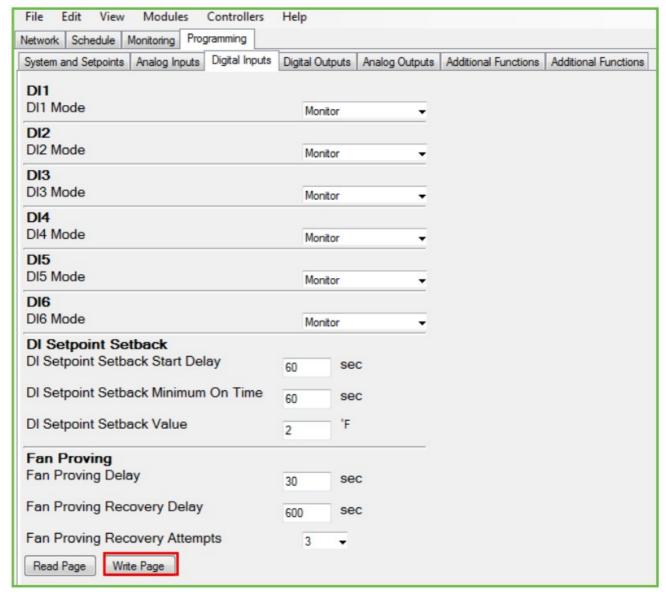




## **Digital Inputs**

Under the Digital Inputs tab, you can enable or monitor settings for the following:

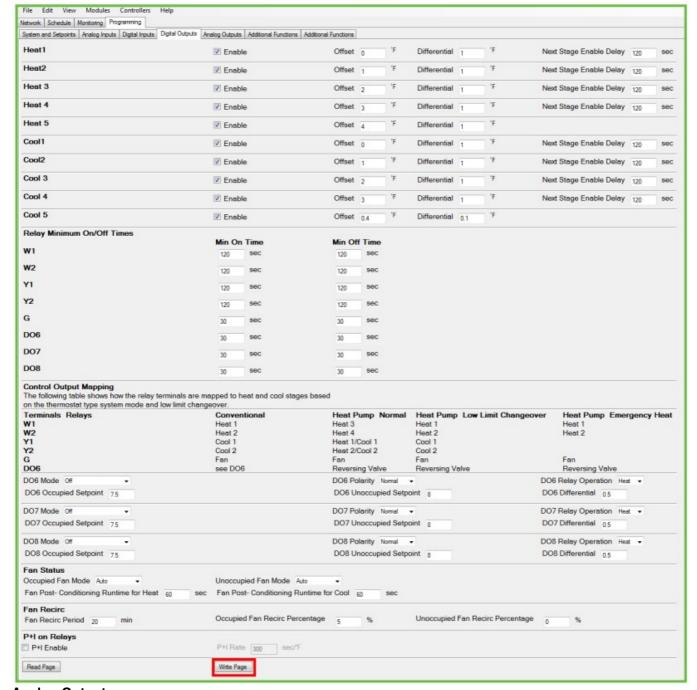
- DI 1 6
- · DI Setpoint Setback
- Fan Proving
- **STEP 1** Click on the desired field to program the relevant settings.
- STEP 2 After programming the Digital Inputs, click on the Write Page button to save the settings.
- STEP 3 (Optional) Click on the Read Page button to make sure all settings were entered.



## **Digital Outputs**

Under the Digital Outputs tab, you can enable or monitor settings for the following:

- Heat 1 5
- Cool 1 − 5
- · Relay Minimum On/Off Times
- Control Output Mapping/Relay Configurations
- Fan Status
- · Fan Recirculation
- P+I Relays
- **STEP 1** Click on the desired field to program the relevant settings.
- **STEP 2** After programming the Digital Outputs, click on the Write Page button to save the settings.
- STEP 3 (Optional) Click on the Read Page button to make sure all settings were entered.



## **Analog Outputs**

Under the Analog Outputs tab, you can enable or monitor settings for the following:

- AO1 6
- · Modulating Heat/Cool Control
- Heat Error PID
- Cool Error PID
- Discharge Reset
- · Discharge Tempering
- Outdoor Air Damper Control
- Economizer Output PID
- Pre-Occupancy Purge
- · Demand Ventilation
- · Face and Bypass
- Aquastat

# Midpoint

**STEP 1** Click on the desired field to program the relevant settings.

STEP 2 After programming the Analog Outputs, click on the Write Page button to save the settings.

STEP 3 (Optional) Click on the Read Page button to make sure all settings were entered.

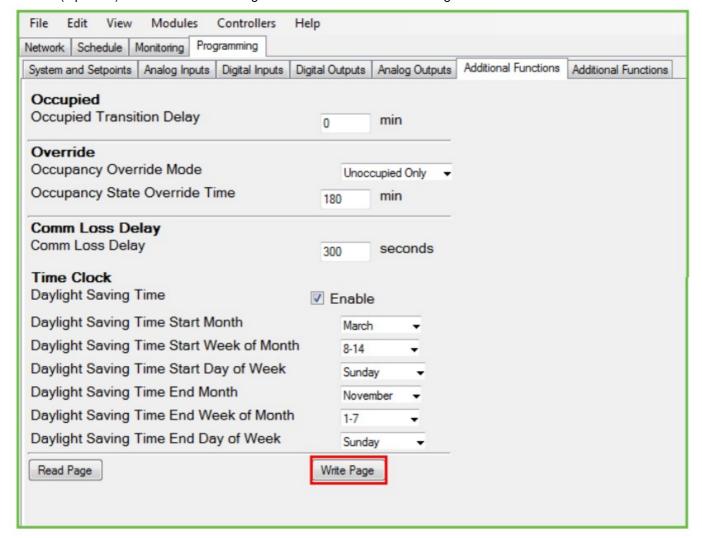
System and Setports   relating ripus   Digital ripu	ta   pullet controls	Additional Functions Additional Functions			
AO1					
AO1 Mode	Off	→ AO1 H/C/A/B Mode	Heat	<ul> <li>AO1 H/C/A/B Unoccupied Mode</li> </ul>	Modulate
AO1 Action	Direct ▼	AO1 H/C/A/B Min Position	0 %	AO1 H/C/A/B Unoccupied Fixed Output	10 %
AO1 Range	4-20mA 🕶	AO1 H/C/A/B Max Position	10 %		
AO2 AO2 Mode	Off	→ AO2 H/C/A/B Mode	Heat		Modulate
AO2 Action	Direct ▼	AO2 H/C/A/B Min Position	0 %	AO2 H/C/A/B Unoccupied Fixed Output	
AO2 Range	4-20mA ▼	AO2 H/C/A/B Max Position	10 %		
AO3					
AO3 Mode AO3 Action	Off	AO3 H/C/A/B Mode AO3 H/C/A/B Min Position	Heat	AO3 H/C/A/B Unoccupied Mode  AO3 H/C/A/B Unoccupied Fixed Output	Modulate
AO3 Range	Direct ▼	AO3 H/C/A/B Max Position	0 %	AO3 H/C/A/B Unoccupied Fixed Output	10 %
AO4	4-20mA ▼	ACS FICARD MAX POSITION	10 %		
AO4 Mode	Off	→ AO4 H/C/A/B Mode	Heat	→ AO4 H/C/A/B Unoccupied Mode	Modulate
AO4 Action	Direct ▼	AO4 H/C/A/B Min Position	0 %	AO4 H/C/A/B Unoccupied Fixed Output	10 %
AO4 Range	4-20mA ▼	AO4 H/C/A/B Max Position	10 %		
		AO4 Occupied Setpoint	7.5	AO4 Prop Band	1
		AO4 Unoccupied Setpoint	8	AO4 Setpoint Type	Heat -
AO4 PID AO4 Proportional Constant	40	AO4 Integral Constant	10	AO4 Derivative Constant	120
AO4 PID Anti Windup Constant	120	AO4 PID Setpoint	120		
AO5 AO5 Mode		AO5 Occupied Setpoint		AOS Prop Bend	
	Off +	AO5 Occupied Setpoint  AO5 Unoccupied Setpoint	12	AO5 Prop Band	12
AO5 Action	Direct →	Aus unoccupied setpoint	12	AO5 Setpoint Type	Heat ▼
AO5 Range AO5 PID	4-20 ▼				
AO5 Proportional Constant	1	AO5 Integral Constant	1	AO5 Derivative Constant	0
AO5 PID Anti Windup Constant	1000	AO5 PID Setpoint	1		
AO6 AO6 Mode	Off •	AO6 Occupied Setpoint		AO6 Prop Band	
AO6 Action			0.1	AO6 Setpoint Type	0.1
	Direct ▼	AO6 Unoccupied Setpoint	0.1	AGG Selpoint Type	Heat ▼
AO6 Range AO6 PID	4-20 ▼				
AO6 Proportional Constant	1	AO6 Integral Constant	1000	AO6 Derivative Constant	1
AO6 PID Anti Windup Constant	1	AO6 PID Setpoint	1		
Modulating Heat/Cool Control					
AO Heat Setpoint Offset	0.1 °F	Heat Prop Band	0 'F		
AO Cool Setpoint Offset	100 °F	Cool Prop Band	0.1 F		
Heat Error PID	Modulating Heat/Cool PI	D Enable			
Heat Proportional Constant	1	Heat Integral Constant	1	Heat Derivative Constant	1
Heat PID Anti Windup Constant	0.1	Heat PID Setpoint	0		
Cool Error PID Cool Proportional Constant	1000	Cool Integral Constant		Cool Derivative Constant	1000
Cool PID Anti Windup Constant	1000	Cool PID Setpoint	1		1000
	75	Juli Filo Jesponit	100		
Discharge Reset  Heat Discharge Reset Enable		Heat Discharge Reset Ratio	0.1 F	Heat Discharge Reset Base Setpoint	10 F
Cool Discharge Reset Enable		Cool Discharge Reset Ratio	0.1 F	Cool Discharge Reset Base Setpoint	
Discharge Tempering					
Heat Discharge Tempering Mode	Off -	Heat Discharge Tempering Setpoint	0.1 °F	Heat Discharge Tempering Prop Band	
Cool Discharge Tempering Mode	Off +	Cool Discharge Tempering Setpoint	0.1	Cool Discharge Tempering Prop Band	0.1
Outdoor Air Damper Control Economizer Mode	Off •	Economizer Setpoint	0 'F	Economizer Prop Band	100 'F
Outdoor Damper Control Source	Discharge Air ▼	Economizer OA Drybulb Setpoint	100	F Economizer OA Drybulb Compare Delta	0.1 'F
Economizer OA Enthalpy Setpoint	0.1 Btu/lb	Economizer OA Enthalpy Compare Delta	0.1 Bt	u/lb Economizer OA Enthalpy Differential	0.1 Btu
OA Damper Discharge Air LL Enable	D	OA Damper Discharge Air LL Setpoint	100 °F	Outdoor Damper Min Position	0.1 %
Economizer Unoccupied Enable					
Economizer Output PID Economizer Output PID Enable	V	Econ Proportional Constant		Econ Integral Constant	
Econ Derivative Constant	1	Econ PID Anti Windup Constant	0	Econ PID Setpoint	1000
Pre-occupancy Purge			U		
Pre-occupancy Purge Enable	<b>V</b>	Pre-accupancy Purge OA Damper Pos	100 %	Pre-occupancy Purge Duration	750 min
Demand Ventilation					

Demand Ventilation LL Override Enable			00 1		U.1
Face and Bypass Face and Bypass Control Enable		Face and Bypass Outdoor Air Setpoint	0	Face and Bypass Damper Prop Band	(0 'F
Aquastat Aquastat Mode	Analog •	Analog Aquastat Setpoint	0.1 °F		
Midpoint Midpoint Bies	75 %				
MonitorPoint.ECONOMIZER_ENA MonitorPoint.ECONOMIZER_OUT MonitorPoint.ECON_FREE_COOL Read Page	Witte Page				

#### Additional Functions (1 of 2)

Under the first Additional Functions tab, you can enable or monitor settings for the following:

- Occupied
- Override
- · Communication Loss Delay
- · Time Clock
- **STEP 1** Click on the desired field to program the relevant settings.
- STEP 2 After programming the Additional Functions, click on the Write Page button to save the settings.
- STEP 3 (Optional) Click on the Read Page button to make sure all settings were entered.

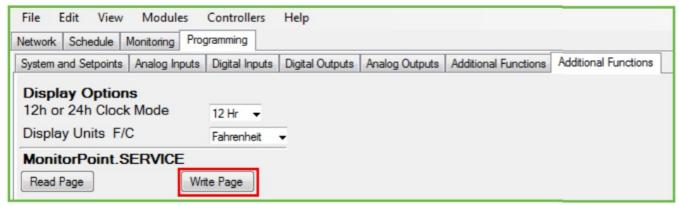


#### Additional Functions (2 of 2)

Under the second Additional Functions tab, you can enable or monitor settings for the following Display Options: **STEP 1** Click on the desired field to program the relevant settings.

STEP 2 After programming the Additional Functions, click on the Write Page button to save the settings.

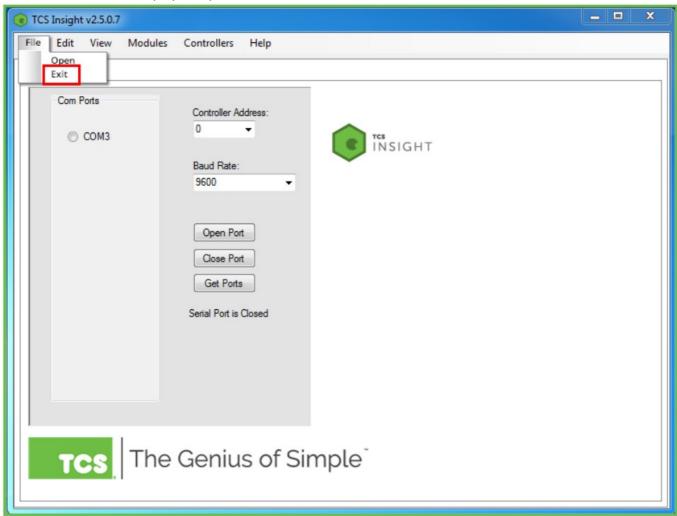
STEP 3 (Optional) Click on the Read Page button to make sure all settings were entered.



## **Exiting the Configuration Software**

**STEP 1** Exit the Insight software by either closing the window or by clicking on the Exit command under the File tab.

STEP 2 Disconnect the laptop computer from the US5182.







# TCS US5182 Air Handling Unit Controller [pdf] User Guide

US5182 Air Handling Unit Controller, US5182, Air Handling Unit Controller, Handling Unit Controller, Unit Controller, Controller



## TCS US5182 Air Handling Unit Controller [pdf] Installation Guide

US5182 Air Handling Unit Controller, US5182, Air Handling Unit Controller, Handling Unit Controller, Unit Controller, Controller



# TCS US5182 Air Handling Unit Controller [pdf] User Guide

US5182, 202305, US5182 Air Handling Unit Controller, Air Handling Unit Controller, Handling Unit Controller, Unit Controller

#### References

- TCS Basys | Energy Management Simplified
- TCS Basys | Energy Management Simplified

Manuals+,