

# User Maual of SkyMEMS Inclinometer Management Software

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# 1. Software Installation

## 1.1 Installation

Open the folder: SkyMEMS Inclinometer Management Software\_V1.2 2019, then click "setup" setup to install the software. The following figure will be pop-up.



# **1.2 Select Installation Folder**

Click "Next" button will enter the interface of selecting the installation folder, see as the following figure.

Destination Directory         Select the installation directories.         All software will be installed in the following locations. To install software into a different location, click the Browse button and select another directory.         Directory for sky mems inclinometer_V1.2         C: \Program Files\sky mems inclinometer_V1.2\         Browse	Destination Directory         Select the installation directories.         All software will be installed in the following locations. To install software into a different location, click the Browse button and select another directory.         Directory for sky mems inclinometer_V1.2         C:\Program Files\sky mems inclinometer_V1.2\         Browse         Directory for National Instruments products		— U
All software will be installed in the following locations. To install software into a different location, click the Browse button and select another directory. Directory for sky mems inclinometer_V1.2 C: \Program Files\sky mems inclinometer_V1.2\ Browse	All software will be installed in the following locations. To install software into a different location, click the Browse button and select another directory.  Directory for sky mems inclinometer_V1.2  C: \Program Files\sky mems inclinometer_V1.2\  Directory for National Instruments products  C: \Program Files \ Mathematical Text and the comparison of	Destination Directory Select the installation directories.	
Directory for sky mems inclinometer_V1.2 C:\Program Files\sky mems inclinometer_V1.2\ Browse	Directory for sky mems inclinometer_V1.2 C:\Program Files\sky mems inclinometer_V1.2\ Directory for National Instruments products C:\Program File \N_timel_L_terms to \N_timel_L_terms	All software will be installed in the following locations. To install software into a	
	Directory for National Instruments products	different location, click the Browse button and select another directory.	

Please select the folder that will be used to install the software.

### **1.3 Start to Install the Software**

After selecting the folder to install the software, then click "Next" button to enter the following figure:

sky mems inclinometer_VI	.2			>
Start Installation Review the following s	ummary before continuing.			
Cannot install • NI-VISA 14.0 (higher version a Run Time Support (higher	lready installed) version already installed)			 
Adding or Changing • sky mems inclinometer_V1.2 F	iles			
ck the Next button to begin insta	llation. Click the Back butt	on to change the	installation settings.	

If the installation settings are ok, then click "Next" button to start the installation.



## 1.4 Installation Success

After the installation is finished, the following figure will be pop-up.

🐙 sky mems inclinometer_V1.2	5 <b>.</b>		×
Installation Complete			
The installer has finished updating your system.			
	ext >>	n <u>F</u> ini	sh 📊

Click "Finish" button to finish the software installation.



# 2. Software Operation

After finishing the software installation, then open My Application->sky mems

inclinometer\_V1.2, then click

sky mems inclinometer\_V1.2 to enter the frame of

SkyMEMS Inclinometer Management Software, see as follows:

😁 inclinometer manager.vi			- 🗆 🗙
⇒ 🔘			
Communication Setting	1-		System Setting
Serial Port com1	-8.0		Set Sucessfully?
Baud Rate 115200	0.6-	T M	New Raud Pate 9600
Address 0000	0.4-	X-Axis Angle	New Dada Kate 5000
open	0.2-	-20 20	New Address 0000 Set
Mode Setting	-0 <	-40 40	Current
Auto	-0.2-	-90 90	Address
Data display	-0.4 -	V-Avic Angle	Set Absolute Zero Set Relative Zero
X: 0.000 °	-0.6-	T AKTS ANGLE	
Y: 0.000 °	-0.8-	-20 20	Save Setting Restore Setting
T: 0.0 °C	-1	60 60~	SkyMEMS
Data Save Path	Sample Count(N)	-90 90	
B:\record.txt	Receive Setting	3	一 育 宇 测 控
Save?	Angle&Temp Angle 5Hz 10Hz 20Hz	25Hz 50Hz 100Hz	Sales Contact

# 2.1 Serial Port Setting

When the USB of USB-485 serial port converter is connected with PC, the serial port will be refreshed automatically (if the serial port is not refreshed, please install the serial port drive software of USB-485 or USB-232), then select the serial port, see as follows:

Serial Port	COM3
	COM3
Baud Rate	LPT1
Address	Refresh

Set the baud rate of the inclinometer, the default baud rate is 115200. And input the address of the inclinometer to connect, the default connected address is 0000 (the address domain is from 0000 to FFFF, Hexadecimal.). And set the waiting time, the default is 200ms. See as following figure:

Communicat	tion Setting
Serial Port	com1
Baud Rate	115200
Address	0000
(	open

After finishing these setting, click the "Open" button to connect the serial port to get the data from the inclinometer **automatically**, this is **automatic output mode** (the system is default set as auotmaic output mode), and the "Open" button will turn to "Close", see as follows:

Communicat	tion Setting
Serial Port	com1
Baud Rate	115200
Address	0000
	close

And the inclinometer data will be automatically output, the default output fequency is 5Hz. See as follows:

Communication Setting			Protos Pathias
Serial Port COM3	10-		Set Sucessfully?
Baud Rate 115200	8- 6- 4-	T T	New Baud Rate 9600
Address 0000	0-	-40 20 40-	New Address 0000
Mode Setting	are 1 4 - 1	60 60_	Current Address Read
Data display	-8-	Y-Avia Angle	Set Absolute Zeco
X: 2.342 °	-12-	(b)	1 310 1
Y: -3.610 °	-16-	-20 20	Save Setting Restore Setting
T: 0.0 °C	-18-, 0 Samole CountiNi	528 -60 60,	SkyMEM
Di/record.txt	Receive	Setting-	育 宇 测 🗄
Save?	Angle&Temp Angle 5Hz 10Hz	20Hz 25Hz 50Hz 100Hz	sales Conta

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# 2.2 Reading Angles

If wanting to change the inclinometer working mode from "Auotmatic Output" mode to "Question and Answer" mode, please operate the system as the following steps:

1. Click "Stop" button in "Receive Setting", see as follows:



Setting", it will output data. (if clicking "Angle&Temp" button, it will output angle and temperature data of the inclinometer, if clicking "Angle" button, it will answer angle data of the inclinometer.), see as follows:



If wanting to change the inclinometer working mode from "Question and Answer" mode to "Auotmatic Output" mode, please follow the following steps:

1. Click "Command"button	,	it	will	turn	to
"Auto" button.					
2. Select the output frequency in "Receive Setting"					

 Receive Setting

 Angle&Temp
 Angle

 5Hz
 10Hz

 20Hz
 25Hz

 5Hz
 10Hz

Then the inclinometer's working mode will turn to "Auotmatic Output" mode from "Question and Answer" mode.

**Attention**: if needing high frequency output, the baud rate should be set as 115200.

#### 2.3 Angles & Temperature Data

The angles and temperature will be displayed here, see as follows:



#### 2.4 Data Save Path

Firstly user can create one txt file in the folder you want, and then click button to open that txt file, and select the checkbox Save? to save the the data into the txt file. The default txt file is named as record.txt, and which is saved in D





disc. See as follows:

# 2.5 Data Graphic Display

The inclinometer data can be display in graphic format in the middle of the frame, X axis, Y axis and temperature data can be selected. See as follows:



## 2.6 System Setting

During system setting, only the system is in "Question and Answer" mode, and " "Angle&Temp" and "Angle" button are not selected, then the parameters in System Setting can be set. See as follows: (it can't be set in "Automatic Output"mode.)

Communication Setting	2.5-		System Setting
Serial Port COM3	2-		Set Sucessfully?
Baud Rate 115200	1.5-	Пт 📈	New Raud Pate 0600
Address 0000	0.5-	X-Axis Angle	New Daud Kate 9000
close	0-	-20 20	New Address 0000 Set
Mode Setting			
Command	-1	-90 90	Current Read
Data display	-2-		Set Absolute Zero Set Relative Zero
X: 2.288	-2.5-	Y-Axis Angle	
Y: -3.679	-3- -3.5-	-20 0 20	Save Setting Restore Setting
T: 14.9	PC -4-, 5082	6105 -60 60~	SkyMEMS
Data Save Path-	Sample Count(N)	-90 90	ORYITEITIC
12:\record.txt	Receiv	ve Setting	一 穹 宇 测 控
Save?	Angle&Temp Angle 5Hz 10Hz	z 20Hz 25Hz 50Hz 100Hz st	Sales Contact

The "New Baud Rate", "New Address", "Set Absolute Zero" "Set Relative Zero" "Save Setting" "Restor Setting" can be set in the System Setting

System Setting	
Set Sucessfully?	
New Baud Rate 9600 Set	
New Address 0000 Set	
Current Read	
Set Absolute Zero Set Relative Zero	
Save Setting Restore Setting	when it is successfully set the status button

Set Sucessfully?

will be lit green

Set Sucessfully?

to indicate that

the setting is successfully set.

Attention: After setting new baud rate, please restart the serial port, then the inclinometer can communicate with the management software at the new baud rate.

Remarks: when click "Set" button, the setting will be saved temporarily, if the inclinometer sensor is powered off, the setting parameter will become its previous setting.

Only click "Save Setting" Save Setting button, the parameters will be saved into the inclinometer sensor permanently.

Attention: after setting "New Baud Rate" and "New Address" in the "System Setting", the corresponding "Baud Rate" and "Address" in "Communication Setting" should be the same as those that are set in "System Setting", or the communication between the inclinometer management software with the inclinometer sensor will fail.

Attention: during setting the "Address", PLEASE REMEMBER ITS NEW ADDRESS, IT CAN'T COMMUNICATE WITH THE INCLINOMETER WITHOUT ADDRESS, SO PLEASE REMEMBER THE ADDRESS DURING YOUR SETTING NEW ADDRESS!

Remarks: in one system, the inclinometer's address should be set into different unique address, the address domain is from 0000 to FFFF, Hexadecimal.

#### 2.7 Running & Stop button

The running and stop button in on the left top of the inclinometer management

software frame, the default status is running status 📄, click the stop button 🔎 to stop the software

#### 2.8 Contact

If having more questions, please click Sales Contact button to contact with our

international department, we will serve you with heart!

