

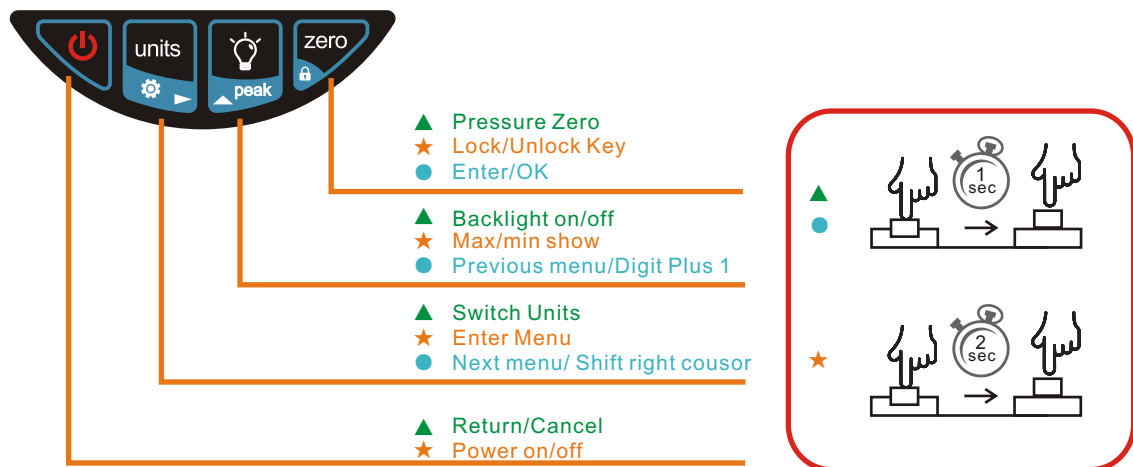
218 Quick Start reference



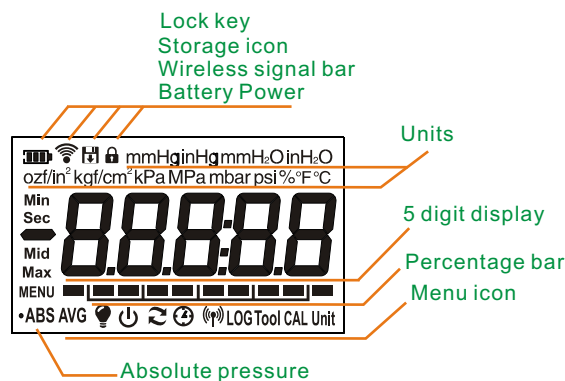
Introduction

The ConST218 digital pressure gauge is designed to offer a truly compact, cost effective digital pressure gauge to cover a wide range of applications. It is not only can calibrate the precision pressure gauge, industry pressure gauge, blood-pressure meter and other pressure gauges, but also it can measure the high-accuracy pressure.

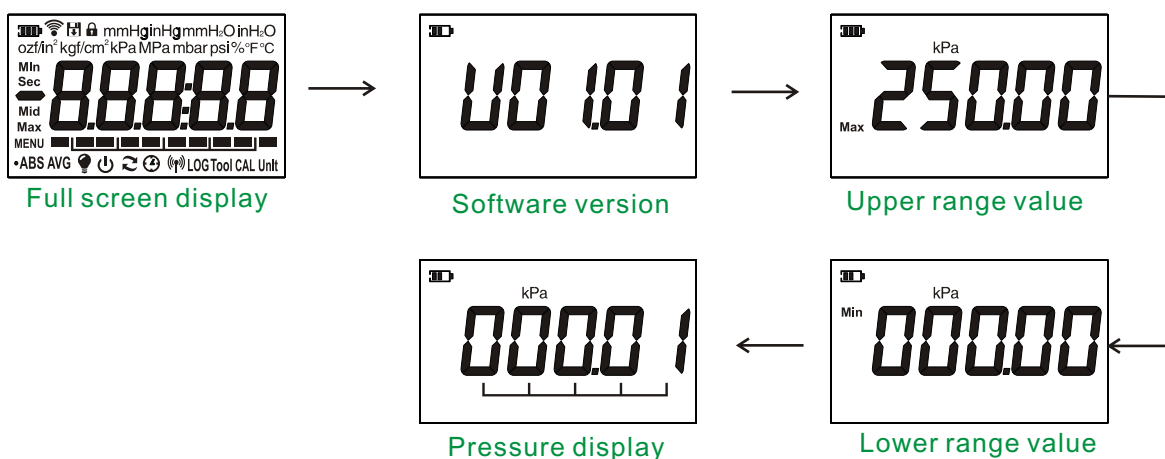
Key introduction



Display introduction



Power on introduction



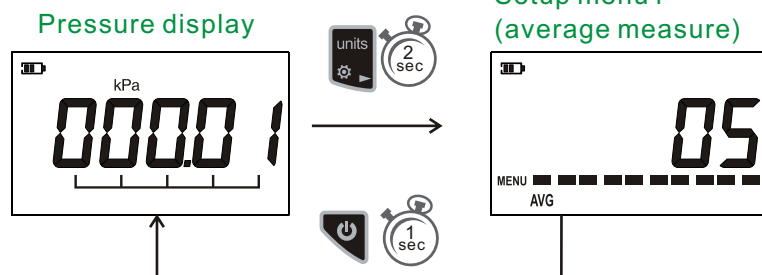
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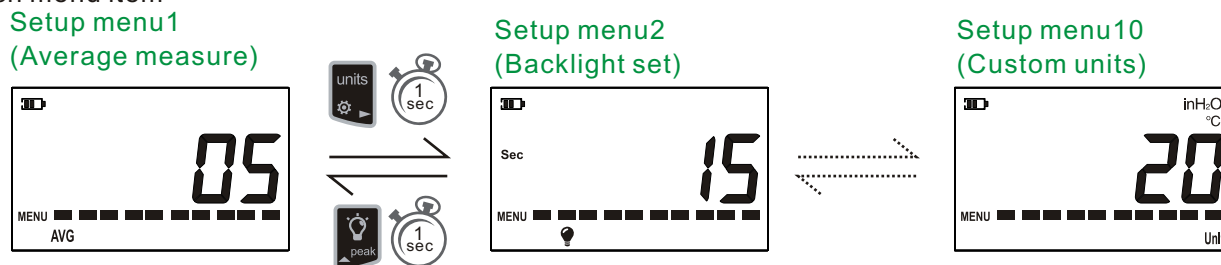
Menu operation

1. Menu operation

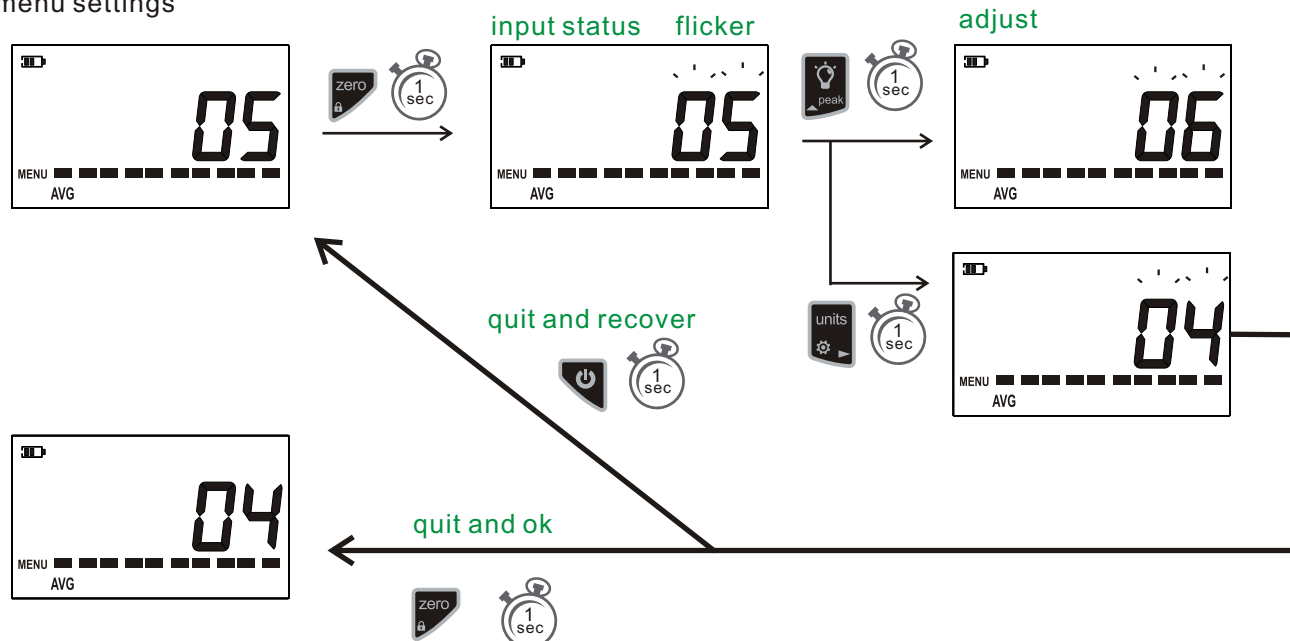
1. Enter /Return menu



2. Switch menu item



3. Sub menu settings



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2.Menu structure

MENU 

AVG      LOGTool CAL Unit

Custom units

- inH₂O(20°C)
- inH₂O(60°F)
- mmH₂O(20°C)
- mmH₂O(15°C)
- ftH₂O(60°F)
- ftH₂O(4°F)

Calibration

- 1. cal (See calibration introduction)
- 2. c-00 Cancel/recover calibration data
- 3. clr Cancel pressure zero
- 4. abs Absolute pressure zero

Assist tool

1.bat	Battery voltage
2.temp	Environment temperature (support ℃、℉)
3.over	Overload pressure count
4.leak	Pressure leak test
5.fact	Restore factory settings
6.az-1	Auto zero

Storage

1.cap	Current capacity indicator
2.send	Upload data
3.del	Delete all data
4.gap	Storage Interval (0001s-9999s)
5.ct-0/1	Keep status of storage when power on
6.off	Storage start/stop

Wireless

1.chan	Wireless channel (CH-01~15)
2.addr	Device address (001~112)
3.ct-0/1	Keep status of wireless when power on
4.off	Wireless on/off

RTC

- Year
- Month:day
- Hour:min
- Second

Rate

0.1 } Period of data measuring
0.3 } (unit:second)
1.0 }

Auto off

15 } Delay time before shutdown
30 } (unit:minute)
45 }
60 }
90 }
120 }
OFF No auto shutdown

Backlight time

15 } Delay time before light is off
30 } (unit:second)
45 }
60 }
ON } Backlight isn't auto off

Average measure

03 } Average filter
04 }
... }
10 }
1ORD Low pass first order filter
OFF No filter

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Calibration

It is recommended the ConST218 is re-calibrated once a year by the skillful professional. Otherwise, the random operation may be effects the inner parameter and weaken the measure performance. The ConST218 should be pressurized to full scale and release all pressure. In order to achieve the best calibration condition, please do the prepressurizing three times at least. If the calibration process is irregular, please use the cancellation function.

Notice: the calibration must according to the standard conditions.

1. Calibration conditions

- (1) Environment: Temperature: $20^{\circ}\text{C} \pm 2^{\circ}\text{C}$; Relative humidity: (45–75) %; Atmosphere pressure: (86~106) kPa.

- (2) Standard pressure source.

2. Calibration process

Select Menu to enter the calibration menu. There are 2 different pressure gauges:

- (1) Single scale gauge: Two-point pressure calibration, the default is higher/lower limit.

The sequence is higher limit > lower limit.

- (2) Dual scale gauge: Three-point pressure calibration, the default is lower/high limit and zero.

The sequence is higher lower limit > zero > higher limit.

The calibration point can be modified if it is meet following conditions:

- (1) The first point value is less than 2nd point;
- (2) Or, the 2nd point value is less than 3rd point.

Example: The ConST218 with (0~100) kPa



- (1) Select calibration menu  (as figure1), then input password "218" and press  enter calibration menu (as figure2、figure3、figure4);



Figure1



Figure2

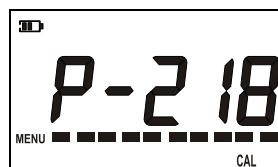



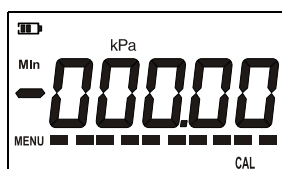


Figure3

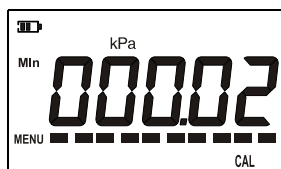


Figure4

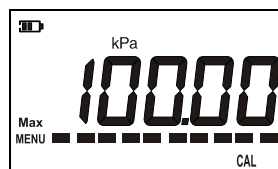
- (2) Select  and press  to display the calibration value of lower limit, as figure 5. If use needs to modify this calibration value, please input the desired value. Otherwise, please press  to confirm ;



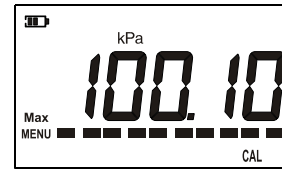
Flashing, input new calibration point
Figure5



The actual pressure measurement value
Figure6



Flashing, input new calibration point
Figure7





The actual pressure measurement value
Figure8

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(3) To calibrate lower limit point: Press  to confirm till the actual pressure value is stable. As Figure6;


(4) Display higher limit point: As Figure 7, please input the desired data if user needs to modify the calibration Value. Otherwise, press  to confirm;

(5) To calibrate higher limit point: Press  to confirm till the actual pressure value is stable. As Figure 8.

(6) The screen returns to the calibration menu, the 2nd option changes to **2C-11**. That shows the calibration is finished and effective, as figure9.

Remark: Three-point pressure calibration is mostly same as the two-point. The only difference is icons Mid display while zero is calibrated.

3. Cancel calibration

Select **2C-11** and push the button  to cancel the calibration, then the screen displays **2C-10**, as figure10

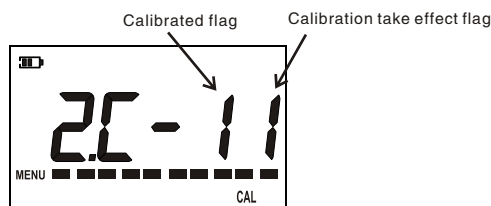


Figure9

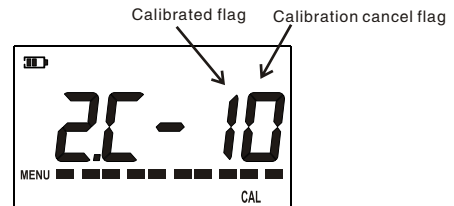


Figure10

Troubleshooting

ERR1 displayed: Beyond zeroing-able range

ERR2 displayed: Sensor data out of limit

ERR3 displayed: Sensor damaged

ERR4 displayed: Internal storage damaged

ERR5 displayed: Internal circuit bug

ERR6 displayed: Wireless Module damaged

ERR7 displayed: Memory full

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Specifications

Pressure Ranges	
Rated Range[psi]	-15、15、30、50、100、200、300、500、1000、2000、3000、5000、10000
Rated Range[bar]	-1、1、1.6、2.5、4、6、7、10、16、25、40、60、100、160、250、400、600、700
Rated Range[kPa]	-100、100、160、250、400、600、700
Rated Range[MPa]	1、1.6、2.5、4、6、7、10、16、25、40、60、70
Pressure Type	Gauge、Absolute
Performance	
Accuracy	0.05%、0.1%、0.2%
Calibrating Period	One year
Update Rate	10/Sec、3/Sec(default)、1/Sec、1/15Sec
Operating Temperature	-10°C~50°C Guaranteed accuracy
Overload Pressure	1.5X
Power Supply	
Battery	2 x AA alkaline (LR6) batteries Duracell MX1500 、 EnergizerE91、 Panasonic LR6、 Duracell 15AU
Usage Period	10/Sec:1500Hours、 3/Sec:3000Hours、 1/Sec:6000Hours、 1/15Sec:12000Hours
Battery Life	5 years (under the gauge is power off)
Rated Power	
Rated	3.0VDC I _{max} =30mA P _{max} =90mW
Material	
Wetting Part	All wetted surfaces are 316L Stainless Steel All welded design(no o-ring,thread tape,epoxy, or sealant on any part of sensor assembly)
Case	PC+ABS
Protecting Cover	Silicone Rubber
Display	
LCD Specifiction	FSTN-LCD,Visual scope 36x61mm; Full 5 digits,15.2mm High; 7 segment analog bargraph scaled to 0~100% of FS
Backlight	White
Wireless Communication	
Wireless Frequency	2.4G ISM Bands, 20meters range
Number of Channel	15
Software	Wireless network demo software for free

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Storage	
Storage Capacity	140,000 records, recorded contents include real-time, pressure and temperature
Storage Interval	1~9999 Sec, can be set
Certificates	
Certificates	CE、FCCID、IC
Protection Level	IP67
Vibration	5g (20~2000Hz)
Shock resistance	100g/11ms
Others	
Dimensions	Φ100mm x 40mm, total height: 157mm
Weight	500g
Fitting	1/4 NPT 、 G 1/4B、 M20×1.5 , or custom-made
Additional functions	
Auto off	Never、 15、 30、 45、 60、 90、 120 Minutes optional.
Filtering	Averaging (3 to 10 samples) or low-pass first-order filter.
Engineering units	Pa, kPa, MPa, bar, mbar, psi, kfg/cm ² , mmH ₂ O, mmHg, inH ₂ O, inHg, ozf/in ² , %, °C, °F Customized definition units: inH ₂ O(20°C), inH ₂ O(60°F), mmH ₂ O(20°C) , mmH ₂ O(15°C) , ftH ₂ O(60°F), ftH ₂ O(4°C)
Backlight Duration	Averaging (3 to 10 samples) or low-pass first-order filter.
Max/Min data capture	Capture the Max and Min data during pressure measurement.
Key Lockout	To avoid mis-operations. When the gauge is in auto-storing status, buttons will be locked automatically.
Overpressure Alarm	Display will flash over 120%FS
Battery voltage Measurement	To measure and display the battery voltage. When the battery voltage is too low, gauge will be power-off automatically.
Overpressure counter	After the gauge left factory, this counter will automatic counting the times of measurement pressure beyond 150%FS.
Leakage test	Detecting pressure leakage in a period of time. The gauge will auto-records beginning pressure value, ending pressure value and leakage ΔP.
Factory Reset	Reset all the settings back to factory default settings, except the calibration parameter.
Automatic Zeroing	Once automatic zeroing function is activated, the measured value will maintain 10 seconds between -0.01%FS to 0.01%FS, then the gauge will be automatically zeroing.

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Warning

ConST218 has low battery indication, if appear automatic shutdown, please to replace new battery in time;

Risk of fire, Battery can explode or leak and cause injury if installed backwards, disassembled, charged, crushed, or exposed to fire or high temperature;

Don't change the components or structure of gauge;

To prevent damage, do not use ConST218 for long time with overpressure;

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation

FCC & IC Radiation Exposure Statement This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment and meets the exemption from the routine evaluation limits in section 2.5 of RSS 102.

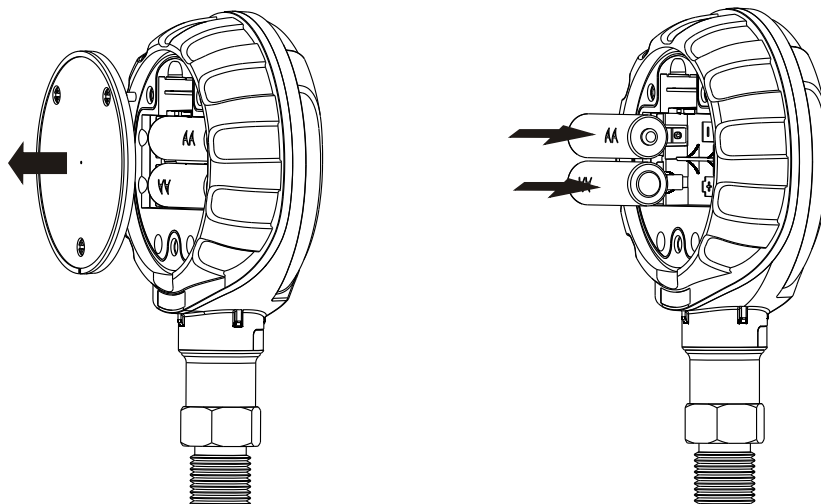
This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:

- (1) this device may not cause interference, and
- (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) l'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radio électrique subi, même si

Battery installation



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Ordering information

Part Number

Model	Accuracy	Range	Type	Fitting	Boot	Software
①	②	③	④	⑤	⑥	⑦
① Product Model: ConST218、ADT680、ADT685						
② Accuracies: 0.025%、0.05%、0.1%、0.2% (ADT680:0.1%、0.2%; ADT685:0.025%、0.05%)						
③ Pressure Range: psi:-15(N15)、15、30、50、100、200、300、500、1000、2000、3000、5000、10000 bar:-1(N1)、1、1.6、2.5、4、6、7、10、16、25、40、60、100、160、250、400、600、700 kPa:-100、100、160、250、400、600、700 MPa:1、1.6、2.5、4、6、7、10、16、25、40、60、70						
④ Pressure Type: G、A						
⑤ Fitting: 1/4 NPT;G 1/4B;M20 x 1.5;other;						
⑥ Protective Boot: 0:no exist 1:exist						
⑦ Communication Software: 0:no exist 1:exist						

Example

ADT685 - 0.025% - -15psi G 1 1 0

ADT680 - 0.02% - 15psi A 2 0 1

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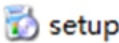
Appendix I


ConST970-1 is a support equipment as the wireless master station for 2.4G wireless Digital Pressure Gauge. It's used for data interaction of digital pressure gauge and computer. ConST970-1 is USB port connection and very convenient for using.

Wireless software introduction

Step 1: Connect ConST970-1 Wireless Master Device(As shown in Picrue-1)to a computer via USB port, computer will prompt to install the driver of this device, which named WMD970drv.inf is in the provided CD. Please install this driver according to prompt message.



Step 2: Click  setup file which is in the CD, and install this installer by following setup wizard.

An icon  will be showed on desk after installation is finish.

Step 3: Configure the wireless communication channel parameter of gauge(s), we take 1 as sample in this manual. Open wireless function of gauge(s), and do the following operations.



Figure1




Figure2

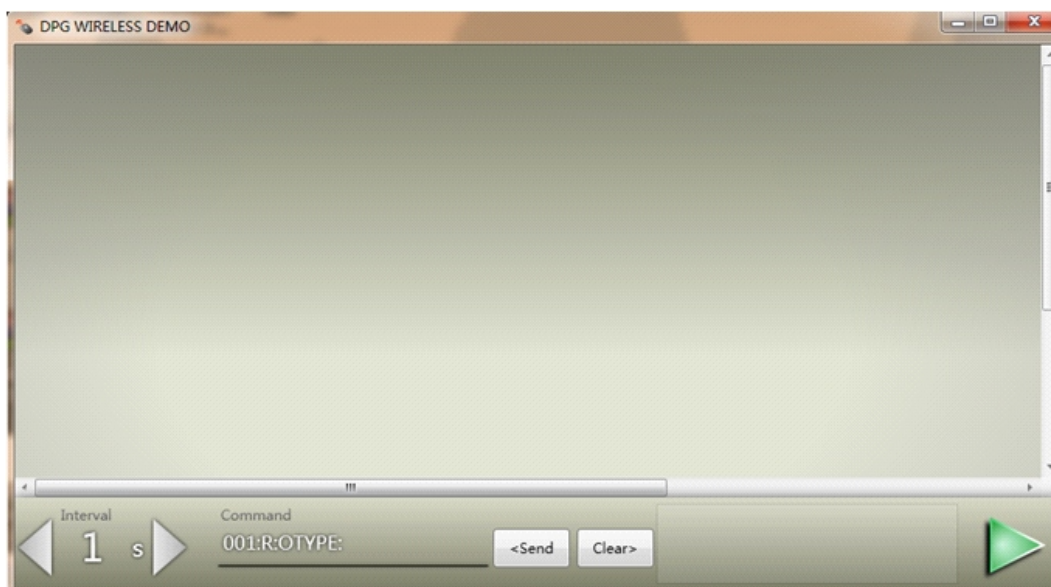


Figure3



Figure4

Step4: Click  to enter this software, you will see below interface.




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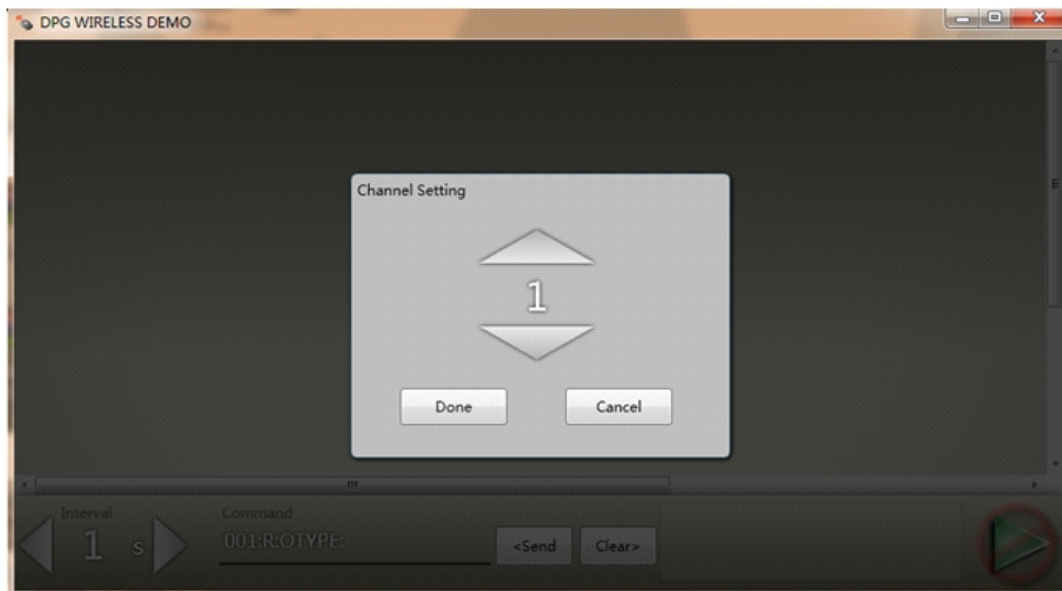


Appendix I

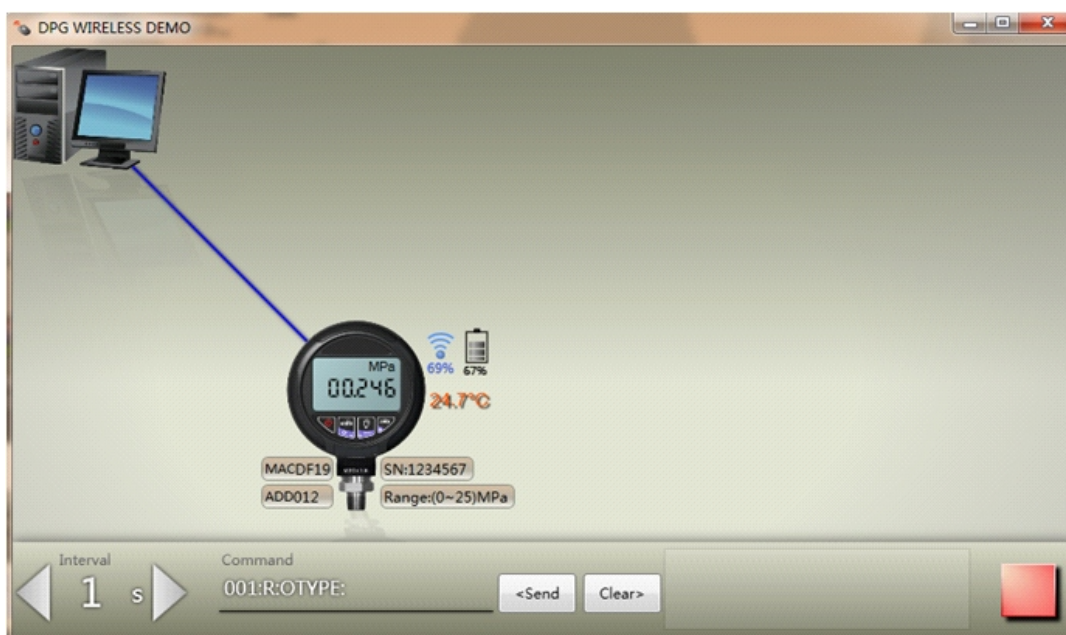
Functions of this software:

- 1、 Multi-gauges communication. The software can communicate with multi gauges at the same time, as long as the channel parameter is same with Master-Device;
- 2、 Collect data of gauge(s) in regular time, the time interval can be set from 1~999 seconds;
- 3、 Sync up the time of PC and gauge(s);
- 4、 Export collected data of gauges to an EXCEL file;
- 5、 Support communication commends to communicate with gauge(s) directly.

Step 5: Click  button, you will see the below picture.




Set the channel parameter as 1, then click “DONE” . The software will scan and connect the available gauge(s). If the connections is succeed, you will see picture as below;

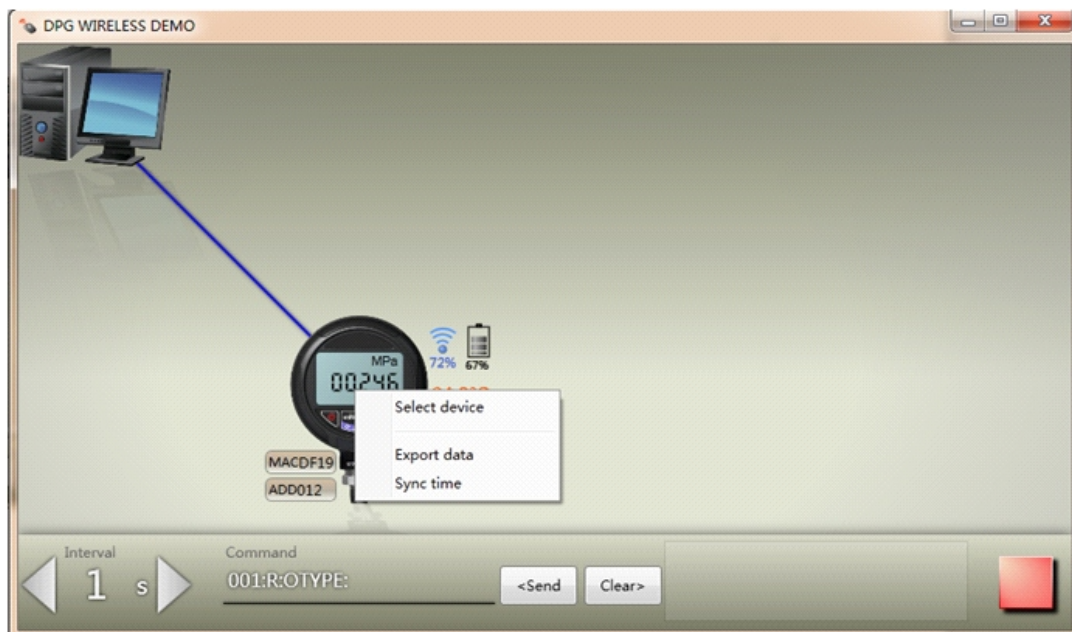




Appendix I

Step 6: Users can set the data collection interval time by inputting desired time

at . Right-click on the gauge, users can do the operations of data exporting and time synchronization.





Appendix II

Storage introduction

