681A/681AEx
Digital Pressure Gauge

Additel
Metrology Made Simple

Additel 681A/681AEx Digital Pressure Gauge

-------User Manual

[Version：2405V01]

Additel Corporation

STATEMENT

This user manual provides operating and safety instructions for AdditelDigital Pressure Gauges. To ensure correct operation and safety, please follow the instructions in this manual. Additel Corporation reserves the right to change the contents and other information contained in this manual without notice.

Content

Figure Content

Safety Instructions

Warning: The situation that poses a threat to user safety.

Attention: The condition that may cause damage to the gauges or affect the calibration result.

Warning:

To prevent the user from injury, please followthis user manual for use.

To prevent fire, electric shock, or personal injury, please do as follows:

1. General:

The pressure medium should be confirmed before use. Please adhere to the followinginstructions:

◆ Please read the user manual before using the product;

◆ Before using the product, please check the appearance of the product to ensure there is no damage;

◆ Please refer to the operation steps in the manual when using the product;

◆ Please be sure to store, transport and use this product in the correct direction;

◆ If the product is damaged or malfunctions, please do not use it and contact Additel;

◆ Never use the non-Ex version in an explosive, steam, or dusty environments.

2. Electrical:

◆ Before using the product, please make sure that the power supply is connected correctly.

Attention：

To prevent injury, please obey the instruction manual for use

To prevent damage, please do as follows:

◆ Do not use the instrument in a high vibration environment;

◆ If the gauge is abnormal, please stop using it and contact Additel.

1. Introduction

1.1 General Introduction

ADT681A /ADT681AExDigital Pressure Gauge is the latest generation digital pressure gauge introduced by Additel Corporation. It is used to calibrate precision pressure gauges, general pressure gauges, sphygmomanometers or other pressure instruments and it can also be widely used for precision pressure measurement.

The power consumption of ADT681A /ADT681AEx is very low, which is suitable for long-term continuous work.Italso has excellent electromagnetic compatibility characteristics and obtained the CE certification and can be used in various complex electromagnetic environments.

Contact us:

Additel Corporation

Tel: +1-714-998-6899

www.additel.com

1.2 Technical Specifications

Table 1Technical Specifications

Item	ADT681A Digital Pressure Gauge	ADT681AEx Intrinsically Safe Digital Pressure Gauge
Ex-proof level	None	Ex ia IIC T4 Ga
Protection Level	IP67	
Case Material	SS	
Dimensions	φ118*42mm	
Weight	682g	
Display	FSTN segment LCD	
Button	4 Function buttons, 1 Power ON/OFF button	
Data Logging	10,000,000 records (Time+Pressure)	
Wireless communication	BLE(default)or None	
Wired communication	USB-DEVICE	
Communication module	RS232	RS232

Power	3*AA batteries or USB TYPE-C adaptor, typical power consumption 3.5 mW	3*AA, typical power consumption 3.5 mW
Environmental	1. Storage Temperature：(-40～75)℃； 2. Operating Temperature：(-10～50)℃； 3. Humidity：(10～95)%RH, non-condensing	
Pressure measure and accuracy	Please refer to Additel website	
Barometric	Range: (60~110) kPa.a, accuracy: ±55 Pa (optional)	
Functional features	Peak value, filter, tare, pressure unit switch, resolution, absolute pressure, leak test, data logging.	

1.3 Features

◆Ultra-low power consumption design, long-term operation;

◆Wide pressure ranges(60Pa～4200 bar);

◆Data logging up to 10,000,000 records (Time+Pressure)

1.4 Basic Structure
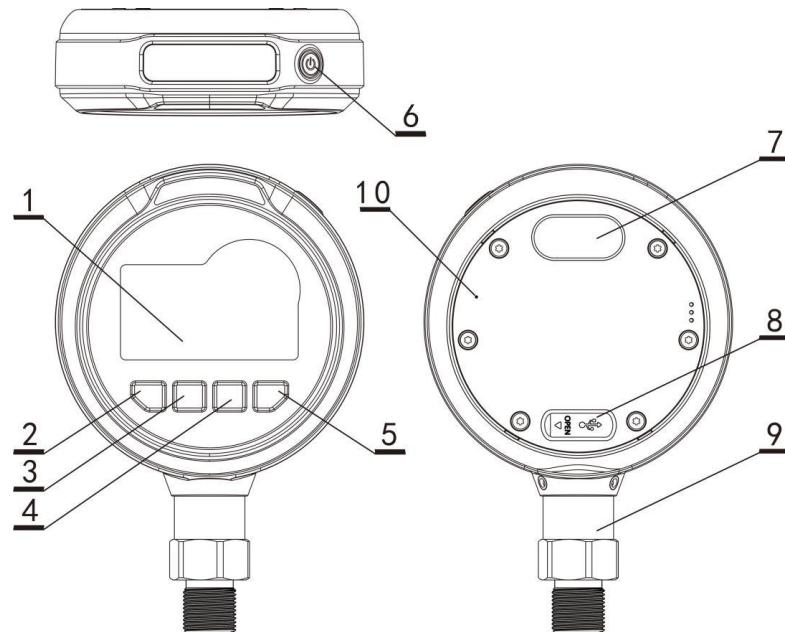
Figure 1Basic Structure

Table 2Basic Structure

No.	Part Name	Icon	Description
1	Display	/	Show pressure, menu……
2	Log button		Short press: Enter data log menu in main display or return to previous menu in non-main display.
			Long press: go to Settings in main display.
3	Unit button		Short press: Switch units in main display ormove to right in non-main display.
			Long press: view parameters in main display, or switch the features of fan-shape display
4	Backlight button		Short press: Backlight on/off in main display or move downward in non-main display.
			Long press: view peak values in in main display
5	Zero button		Short press: pressure zero in main display, or "Confirm" in non-main display
			Long press: Bluetooth On/Off in main display
6	Power button		Long press to power On/Off, short press to lock/unlock
			Long press to power On/Off, short press to lock/unlock

7	Communication module	/	RS232
8	USB TYPE-C	/	Communication and power supply
9	Pressure module	/	/
10	Barometer port	/	Visible after removing the back cover (with ATM mark), for barometer calibration connection

1.5 Power Supply

For ADT681A, power can be supplied by battery or USB TYPE-C 5V adaptor.
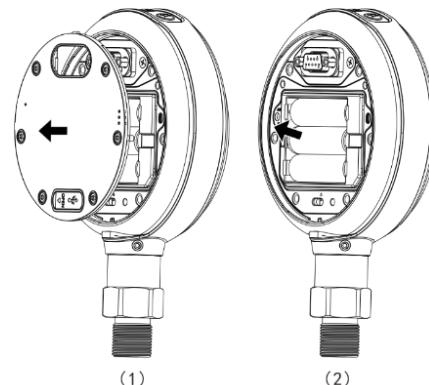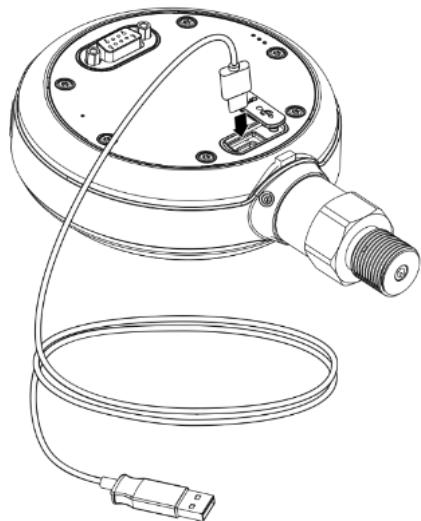
Figure 2Power supply by adaptorFigure 3 ADT681A Power supply by battery

For ADT681AEx, power is supplied by battery.

(1)   (2)
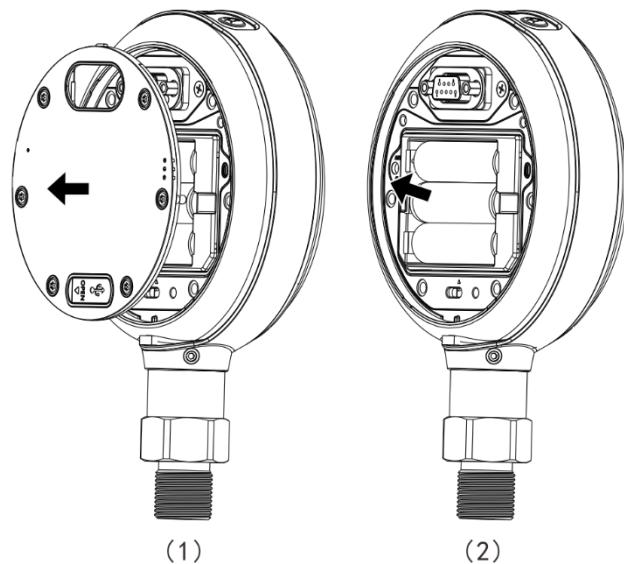
Figure 4 ADT681AExBattery installation

Table 3Approved battery models

Manufacturer	Type	Ta
ENERGIZER	E91	(-18~45)℃
Maxell	LR6	(-20~60)℃
Rayovac	815	(-30~55)℃

Warning:
◆ If using battery, please replace battery when the device is automatically powered off due to low power.
◆ When replacing the battery, please note the direction of battery electrodes.
◆ Never replace the battery in hazardous area.
◆ Use only the approved battery models.

1.6 Battery Life and Configuration

Table 4Battery life and configuration

System mode	Pressure display rate	ADT681A battery life	ADT681AEx battery life
Normal	10 readings/ 1 s	1,000 h	1,000 h
Low power consumption (default)	3 readings/ 1 s(L)	4,000 h	4,000 h
Low power consumption	2 readings/ 1 s (L)	5,000 h	5,000 h

Low power consumption	1 reading/ 1 s (L)	9,000 h	7,000 h
Low power consumption	1 reading/ 2 s (L)	10,000 h	9,000 h
Low power consumption	1 reading/ 3 s (L)	11,000 h	10,000 h
Low power consumption	1 reading/ 4 s (L)	12,000 h	11,000 h
Low power consumption	1 reading/ 5 s (L)	13,000 h	12,000 h
Low power consumption	1 reading/ 6 s (L)	14,000 h	12,900 h
Low power consumption	1 reading/ 7 s (L)	15,000 h	13,600 h
Low power consumption	1 reading/ 8 s (L)	16,000 h	13,800 h
Low power consumption	1 reading/ 9 s (L)	17,000 h	14,000 h
Low power consumption	1 reading/ 10 s (L)	18,000 h	14,200 h

Note：

[1] The "L" in the table indicates the pressure module is in low power consumption mode. By going to secondary menu, users can set the pressure display rate, refer to Para.3.1.2 for detail.

[2] When Bluetooth is enabled for communicating with cell phone, the power consumption will increase. For example, in default mode, the battery life will be 300 h when the gauge communicates with cell phone.

2. Display and Operation

2.1 Main Display

Main display as shown in Figure 5:

◆Status bar: Including battery, USB status, pressure reading rate HS (high speed), FILT, ABS,BluetoothREC, and button lock. When the battery icon is blank and flashing, Bluetooth will be turned off automatically. When the battery power is too low, it will prompt the low battery to automatically turn off and will start to countdown to turn off the gauge automatically.

◆Unit area：including kPa,Pa,mbar,bar,MPa,mmHg,inHg,psi,mmH2O,inH2O,ozf/in2 and kgf/cm2, varies by pressure ranges, "user" means custom unit;

◆Identifier area: Including icons for menu, ATM, Alarm (when the pressure value overranges, this icon and main display will flash for prompt), Tare, leak test △P/Max/Min, clock, temperature unit, AM, PM, and percentage;

◆Main display area: Display pressure values and edit items;

◆Sub display area: Display a multi-digit value, time information or the title of setup menu;

◆Percentage pressure indicating area:Displays the pressure percentage on the perimeter of the fan-shape display. The triangle icon indicates the position of the pressure percentage.
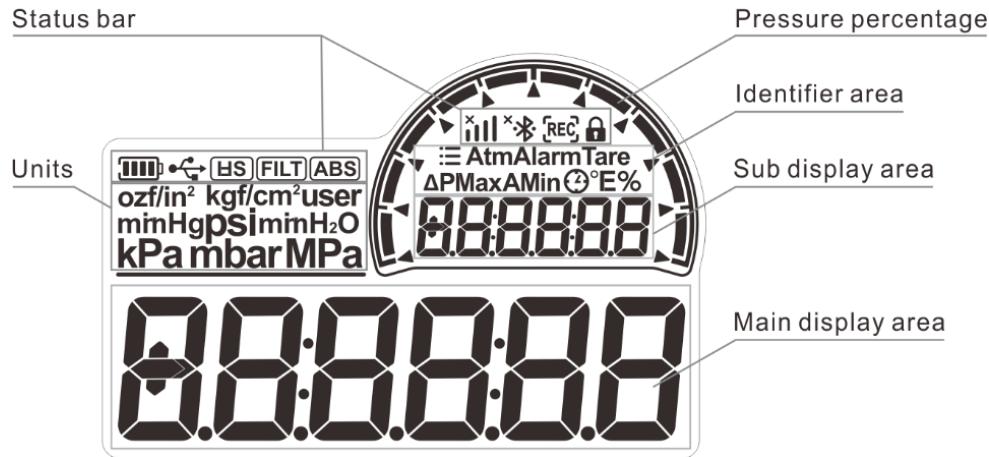
Figure 5Main Display

2.2 Main Operation Interface

After the pressure gauge is turned on, it first displays the interface of the original range of the pressure module. 3 seconds later, it will enter the main display immediately. The main display is divided into: status bar, pressure unit display area, identifier area,main display area, and sub display area, as shown in Figure 6.
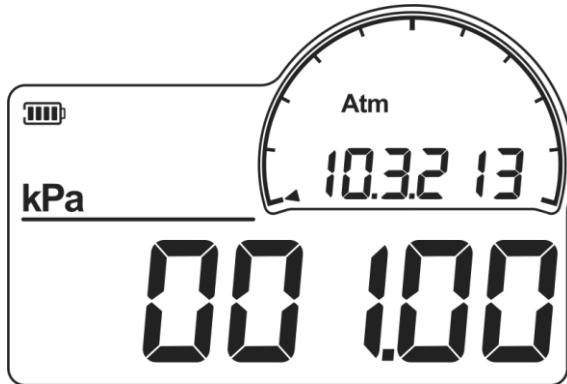
Figure 6Main Operation Interface

1. Status Bar: Including battery, USB status, pressure reading rate, filter status, absolute pressure; Bluetooth, data log and button lock;
2. Unit：Pressure unit, press Unit button to switch;
3. Identifier area: Including Atm. Alarm. Tare. △P. Max. Min. clock. AM. PM. ℃. ℉. %. It indicates the display item of sub display area;
4. Main display area: Display pressure values；

5. Sub display area: Display atmospheric pressure, tare value,leak test, maximum and minimum pressure, time, temperature, and pressure percentage. Long press Unit button to switch between them.

2.3 Buttons

Power button: Short press to unlock the buttons.Long press to power on/off the gauge;

Log button: Short press: in main display, go to data log menu; in other menus, it functions as "return."Long press: go to Setup from main display;

Unit button:Short press: in main display, switch pressure units; in other menus, move to right. Long press: view parameters in main display, sub display will switch content to be viewed;

Backlight button: Short press: in main display, backlight on/off; other menus, move downward. Long press: view peak value in main display;

Zero button: Short press: in main display, pressure zero; other menusis "Confirm."Long press: Bluetooth on/off in main display.

2.4 Pressure Measurement

When the gauge is in the main display, it will show the current pressure unit and real-time pressure value in unit area and main display area. And it will show the pressure percentage around the sub display area.

2.4.1 Pressure Percentage Indication

The pressure gauge displays the pressure percentage on the perimeter of the fan-shape display area after entering the main display, and the percentage is indicated by triangle icon. As shown in Figure 7, it has triangle icon and ten grids.
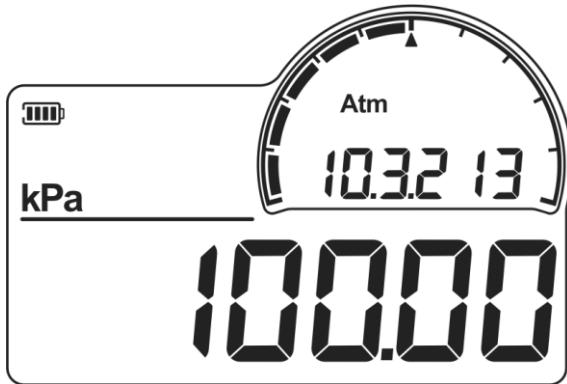
Figure 7Pressure percentage indication

2.4.2 Pressure Zeroing

When the gauge is in gauge pressure mode, press Zero button to zero the pressure. When in absolute pressure mode, the zeroing operation cannot be performed.

2.4.3 Pressure Unit Switching

Press the Unit button to switch the pressure units.

The pressure units vary from different pressure ranges, not all units can be selected depending on the gauge model.
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2.4.4 Pressure Tare

1. In main display, long press Unit key to switch the display items in the sub display area, and switch to the Tare setting item, as shown in Figure 8. The Tare icon does not flash under the Tare setting item, and the sub display shows OFF to indicate that the Tare function is turned off.
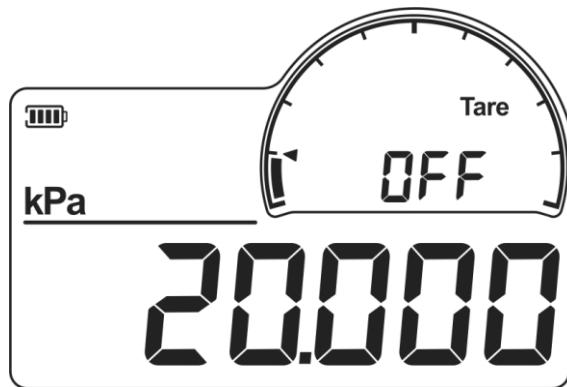
Figure 8 Tare settings

2. At this moment, short press the Zero button, and the gauge will capture the current pressure value as the Tare value, which will be displayed in the sub display area, and the current pressure value will be zeroed, as shown in Figure 9. Short press the zerobutton again to turn off the Tare function. When the Tare is enabled, long press the Unit button to switch to other setting items in the sub display area, then Tare icon will flash, indicating that Tare is enabled.
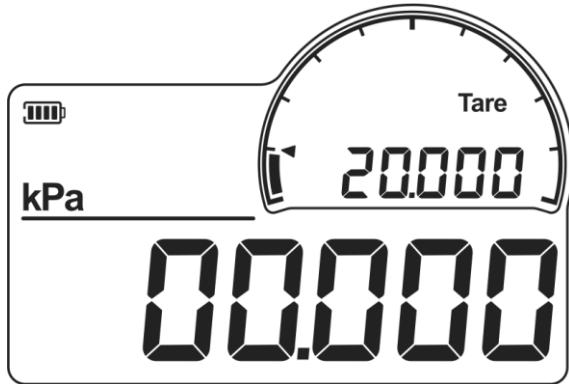
Figure 9 Tare is enabled

2.5 Pressure Peak Value

The device automatically records the maximum and minimum pressure values that occur during the pressure measurement. The recorded peak value can be viewed in the pressure peak function by long pressing the peak button on the main display, as shown in Figure 10, the maximum pressure value is displayed in the main display area, short press peak again to view the minimum pressure value, as shown in Figure 11. And finally, short press the peak button to return to the main display. In the process of viewing the peak value, short press the Zero button to clear the peak value.
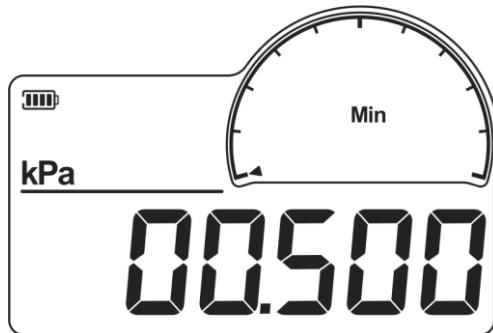
Figure 10Maximum pressure value
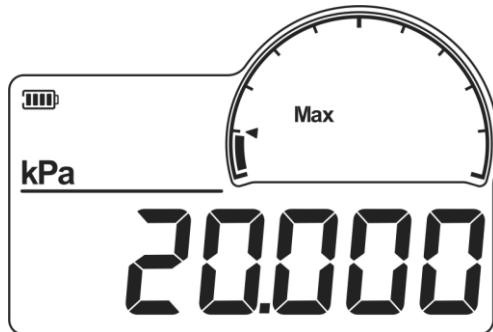
Figure 11 Minimum pressure value

Table 5Pressure peaks setting

Subject	Introductions
Max	Maximum Value
Min	Minimum Value
Zero	Reset data

2.6 Pressure Leak Test

1. In the main display, long press the Unit button to switch theitems in sub display area, and switch to △P. At this moment, the sub display area displays the leak test time, and the main display area displays the pressure value. Short press the Zero button to perform the pressure leak test, as shown in figure 12.The main display area displays the real-time pressure value, and the sub display area displays the test time. When the leak test is running, short pressing the Return button will stop the ongoing test and return to the main display.
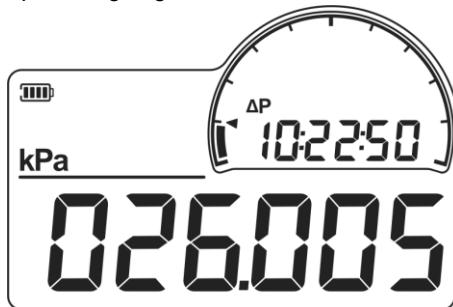
Figure 12Leak test running

2. After the pressure leak test is completed, as shown in Figure 13, the P logo appears in sub display area, and the pressure difference value is displayed in the main display area. When it ends, short press the Down or Right button to switch and display the initial pressure value P1 as shown in Figure 14, the end pressure value P2 as shown in Figure 15, and the pressure difference value is P.
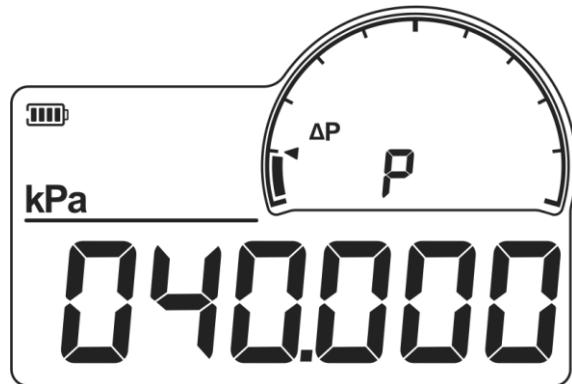
Figure 13Leak test completed
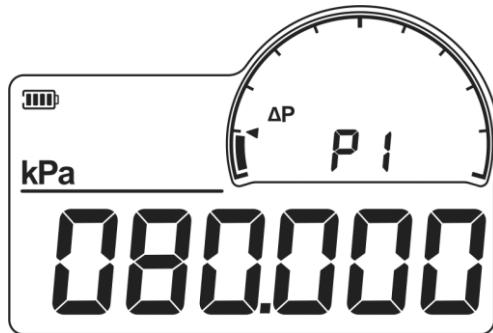
Figure 14Leak test initial pressure
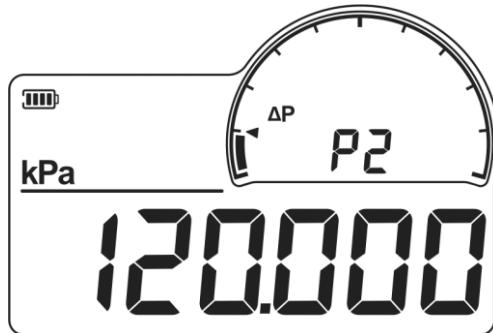
Figure 15Leak test end pressure

2.7 Data Log

1. Short press the Log button in the main display to enter the date log menu. The menu includes start and stop data

logging, occupied storage capacity, interval,and clear data. Short press the Right button or Down button to switch

between setting items.
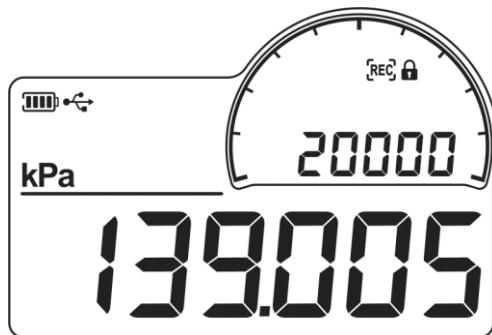
Figure 16Data logging

2.7.1 Start/stop Data Log

The title bar displays 1, and the main display area displays the data log status at this moment. Short press the

Enterbutton to enter the data log status editing menu. When data log is started, the icon ⌈REC⌋ in the status bar flashes

occasionally, indicating that data log is in progress. If you return to the main display after starting data log, the screen will

be locked directly, or if you do not operate the button for 1 minute, it will automatically return to the main display and lock

the screen. As shown in Figure 16, the sub display area displays the number of records. When the number exceeds the

display range of the sub display area, only the low digits of the record numbers are displayed.

2.7.2 OccupiedStorage Capacity

The title bar displays 2, and the main display area displays CAP, short press Enter button to view the occupied
storage capacity.

2.7.3 Interval Setting

The title bar displays 3, and the main display area displays GAP, short press Enter button to edit the logging interval,
range is from 1 s to 99999 s, or 0.1 s.

2.7.4 Clear Data

The title bar displays 4, and the main display area displaysdEL, short press Enter button to input password 1234, then
short press Enter to clear all recorded data.

2.8 Screen Lock and Unlock

Short press the Power button to lock and unlock the screen. When the screen is locked, a lock icon will be displayed
in status bar. Click other places on the screen, the lock icon will flash to remind the pressure gauge has entered the lock
screen status.

Note: If password protection is enabled, you will be prompted to enter the passwordto unlock, and only the correct
password can unlock the display.

2.9 Password Keyboard Display and Editing

The password keyboard will pop up when performing pressure gauge calibration, restore tofactory setting and clear
the data log. The password keyboard can edit each digit. Digit being edited will flash, short press Down button to switch

24

numbers, and short press Right button to move to next digit. Short press Enter button to confirm the password. Short press Return button to go to previous menu. As shown in Figure 17.
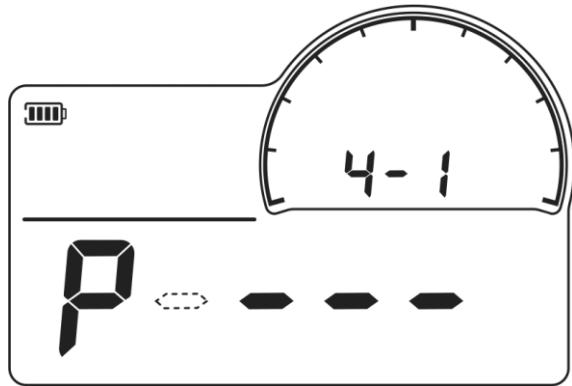
Figure 17Password display and edit

2.10 Numeric KeyboardDisplay and Editing

The pressure gauge provides a numeric keyboard, as shown in Figure 18. Adjust the value for each digit, digit being edited will flash, short press Down button to switch numbers, and short press Right button to move to next digit. Short press Enter button to confirm.Short press Return button to go to previous menu.
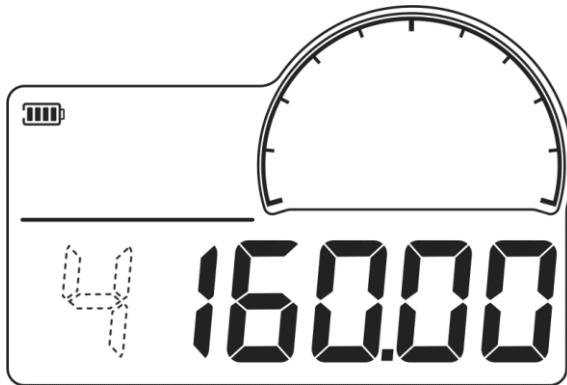
Figure 18Numeric keyboard

2.11 Cycle Selection Keyboard Display and Editing

The system provides a cycle selection keyboard to set parameters, as shownin Figure 19. The main display area will flash to indicate that it is being edited, for example the baud rate is now set to 9600, and the baud rate can be switched by pressing the Down and Right buttons. Short press Enter button to save the setting and exit, short press Return button to go to previous menu.
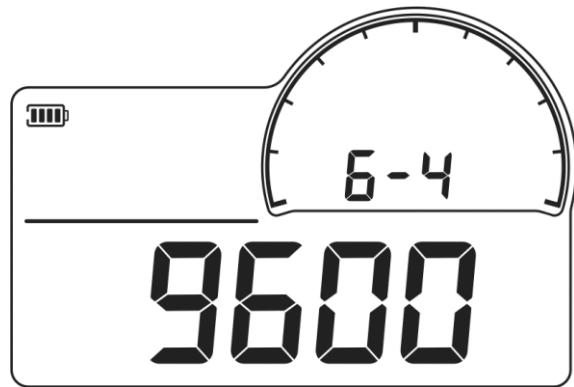
Figure 19Cycle selection keyboard

3. System Settings

In the main display, long press the Settings button to enter the system setting, and short press the Settings button in the setting interface to return. In the system settings, short press the Down button to cycle through the various menus. If a menu contains submenus, short press the Right button to switch each submenu.

The system settings include the following:

◆Personalization;

◆Custom units;

◆Time and date;

◆Calibration;

◆System;

◆Communication.

3.1 Personalization

Include: leak test time, pressure sampling rate, pressure display resolution, backlight, auto power off, filter, temperature units and pressure type. Short press the Right button to cycle among the sub menus.

3.1.1 Leak Test Time Settings

The title bar displays 1-1, the main display area displays LEAH, short press the Enter button to enter the leak test time setting. The leak test time can be adjusted digit by digit.

3.1.2 Pressure SamplingRate

The title bar displays 1-2, the main display area displays RATE, short press the Enter button to enter the pressure sampling rate setting. 3-1L means that the pressure module takes 3 samples per second. The default setting is 3 times per second in low power mode.

The pressure gauge provides the following sampling rate settings:

10—1(10readings /1sec)   3—1L(3readings /1sec)   2—1 L(2readings /1sec) 1—1 L(1reading /1sec)

1—2 L(1reading /2sec)   1—3 L(1reading /3sec)   1—4 L(1reading /4sec)   1—5 L(1reading /5sec) 1—6 L(1reading /6sec) 1—7 L(1reading/7sec)   1—8 L(1reading /8sec)   1—9 L(1reading /9sec)   1—10 L(1reading /10sec)

With a L indicates that the gauge is in low power consumption mode, and without L indicates that the gauge is in normal working mode.

When the sampling rate is set to10readings /1sec, it means high sampling rate, with an indication of HS in status bar.

3.1.3 Resolution

The title bar displays 1-3, the main display area displays bit. Short press Enter button to edit the resolution. It supports 5 digits and 6 digits.

3.1.4 Auto-Backlight Time Settings

The title bar displays 1-4, and main display area shows LEd. Short press Enter button to edit the auto-backlight turn off time. It supports 15 seconds, 30 seconds, 45 seconds, 60 seconds, and ON (the backlight is always on).

3.1.5 Auto Power Off Settings

The title bar displays 1-5, the main display area displays AUTOFF, short press Enter button to enter the auto power off setting. It supports OFF (auto power off function is disabled), 15 minutes, 30 minutes, 45 minutes, 60 minutes, 90 minutes, and 120 minutes.

3.1.6 Filter

The title bar displays 1-6, the main display area displays FILT, short press Enter button to enter the filter mode settings. OFF means to turn off the filter, 1Ord means to select the first-order filter mode, and 3~10 mean the average filter.

Table 6 Filter settings

Subject	Effective values	Description
First-order coefficient	0.05 ~ 1	Available for first-order filtering mode, default is 0.05, can be changed by commands
Number of filtered samples	3 ~ 10	Number of samples for average filtering
Extreme value pairs will be removed	0 ~ 4 (The Extreme value pairs number should not exceed (Samples number-1)/2)	Extreme value pairs will be removed in average filtering, default is 0, can be changed by commands

3.1.7 Temperature Unit Settings

The title bar displays 1-7, the main display area displays TEMP, short press the Enter button to enter the temperature unit settings. It supports Celsius and Fahrenheit unit switching.

3.1.8 Pressure Type

The title bar displays 1-8, the main display area displays P-TYPE, short press the Enter button to switch between gauge pressure (GAGE) and absolute pressure (AbS).

3.2 Custom UnitSettings

The title bar displays 2-1, the main display area displays COE, short press the Enter button to enter the custom unit settings. User-defined unit coefficients can be modified by commands, and can also support selectinH2O(20℃),inH2O(60℉),mmH2O(20℃),mmH2O(15℃),ftH2O(60℉),ftH2O(4℃) as Custom units, as shown below:
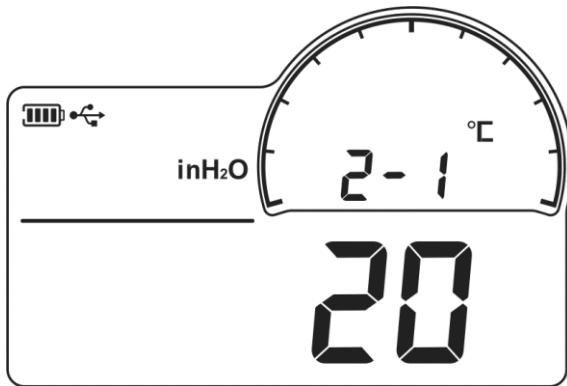
Figure 20Select inH$_2$O(20℃)

3.3 Date and Time Settings

Including settings for time, date, year, and time format.Short press the Enter button to enter the setting items, and short press Right button to switch between items. The time format supports 12H and 24H.

3.4 Pressure Calibration

The title bar displays 4-1, and the main display area displays P-CAL. Short press the Enter button to enter the password 1234, and then short press the Enter button again to enter pressure calibration. It includes calibration status display, cancel calibration, and cancel zero.Short press Right button to switch between items.

3.4.1 Calibration Settings

1. Calibration status: When calibration has been performed, CAL-1 will be displayed in the main display area, and when it is not calibrated, CAL-0 will be displayed. Short press Enter button to go to calibration process.

2. Cancel calibration: The main display shows FAC, short press Enter button to cancel calibration.

3. Cancel zero: The main display shows ZERO, short press Enter button to cancel zero.

3.4.2 Calibration Process

There are two situations of calibration.

(1) Single-range instrument: 2-point calibration, the default calibration points are upper and lower limits of the range. The order is to calibrate the lower limit first and then the upper limit. After the upper limit is calibrated, it will return to the calibration status interface.

(2) Dual-range instrument: 3-point calibration, the default calibration points are the lower limit of the range, zero point and the upper limit of the range. The order is to calibrate the lower limit first, then calibrate the zero, and finally calibrate the upper limit. After the upper limit is calibrated, it will return to the calibration status interface.

Now taking the (0~100)kPa instrument as an example to illustrate the calibration process: short press the Enter button under the calibration status menu to enter the calibration process:

1. Display the lower limit calibration point, as shown in Figure 21, the identifier area displays Min to indicate the lower limit of calibration. The main display area displays the calibration point being edited, and the focus position will flash. Short press Right button to move the focus position, short press Down button to adjust the value, short press Enter button to confirm the current calibration point and go to lower limit display.
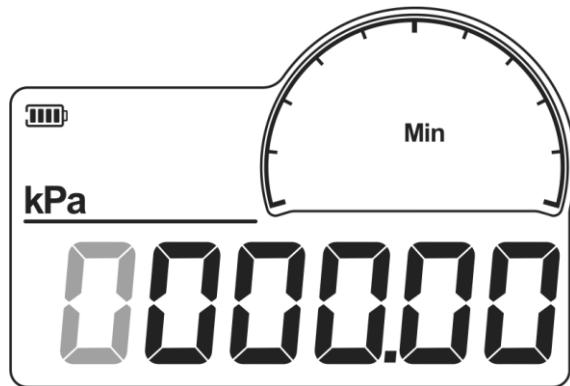

Figure 21 Lower limit calibration point

2. Start lower limit calibration, as shown in Figure 22. The main display shows the measured pressure value, after the pressure stabilized, short press Enter button to confirm.
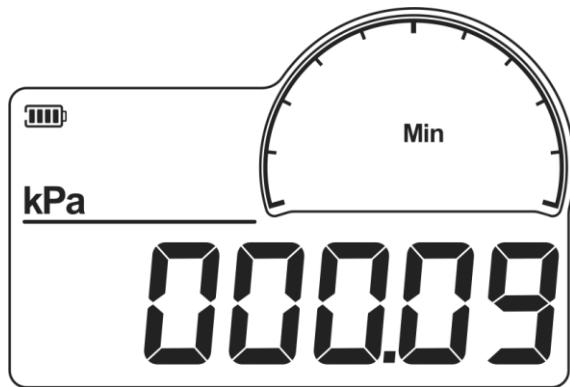

Figure 22 Lower limit calibration

3. Display the upper limit calibration point, as shown in Figure 23, the identifier area displays Max to indicate the upper limit of calibration. The main display area displays the pressure reference value being edited. If the user wants to change calibration point, just change it directly. If not, press Enter button to confirm.
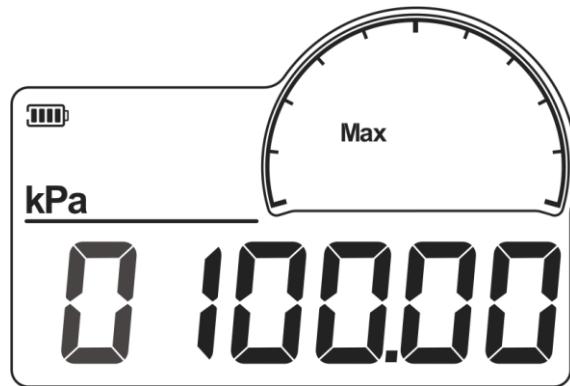

Figure 23Upper limit calibration point

4. Start upper limit calibration, as shown in Figure 24. After the pressure stabilized, short press Enter button to confirm.
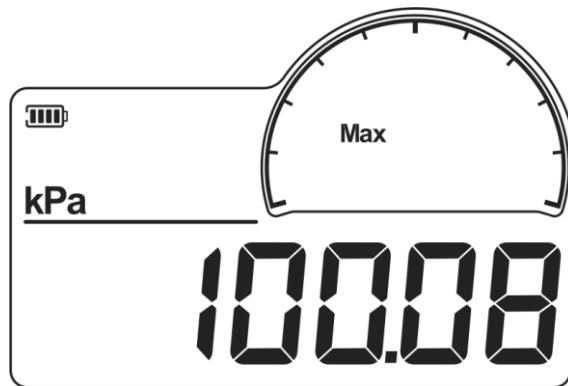

Figure 24 Upper limit calibration

5. Now the calibration is completed, return to calibration status menu and it will show CAL-1, which indicates the calibration takes effect. As shown in Figure 25.

Figure 25 Calibration status menu

3.5 BarometricCalibration

The title bar displays 4-2, the main display area displays A-CAL, short press the Enterbutton to enter the password 1234, and then short press the Enterbuttonagain to enter barometric calibration, including calibration status, cancel calibration and offset settings. Short press the Right button to switch between the setting items.

3.5.1 BarometricSettings

1. Calibration status: after calibration, the main display area displays CAL-1,and CAL-0 will be displayed when it is not calibrated. Short press Enter button to enter calibration process.

2. Cancel calibration: the main display area displays FAC, short press Enter button to cancel calibration.

3. Set the offset value: the main display area displays OFFSET, short press Enter button to edit barometric offset value.

3.5.2 Barometric Calibration

Before the calibration, please open the battery cover of the gauge, and connect the pressure hose to the ϕ 4 pressure port, as shown in Figure 26.
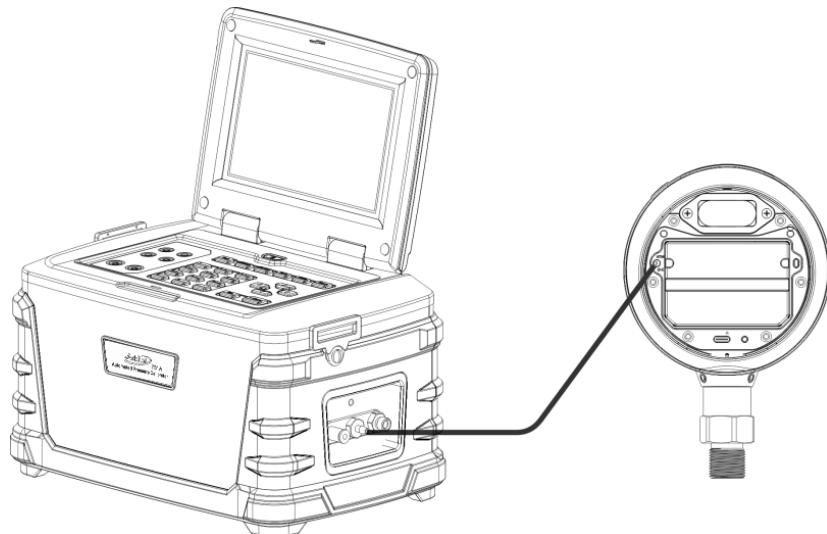

Figure 26Barometric calibration

In the calibration status, short press the Enterbutton to enter the barometric calibration process, at first it will display the lower limit calibration point, edit if necessary, short press Enter button to show the lower limit pressure value. After the measured value stabilized, short press Enter button to go to edit upper limit calibration. The procedures are same as calibrating lower limit. After the upper limit calibration is completed, return to the barometric calibration status menu and the main display area will show CAL-1, which means the calibration takes effect.

3.6 System Settings

3.6.1 Restore to Factory Settings

The title bar displays 5-1 and main display area shows RESET, short press Enter button to enter password, the default password is: 1234.Then short press Enter button torestore to factory settings. Short press Return button togo back to previous menu.

3.6.2 Version Information

The title bar displays 5-2, and the main display area displays SOFT and show the system firmware version. The sub display area shows the version of pressure module.

3.6.3 OverPressure Records

The title bar displays 5-3, and the main display area displays OVERP, short press Enter button to view the over pressure records.

3.7 Communication Settings

3.7.1 Bluetooth MAC Address

The title bar displays 6-1, and the main display area displays MAC. Short press Enterbutton to view the Bluetooth MAC address. The main and sub display area show the MAC address.

3.7.2 Bluetooth Auto-off Settings

The title bar displays 6-2, and the main display area displays bLEAUt. Short press Enterbutton to enable or disable the Bluetooth auto-off function. Once it is enabled, Bluetooth will automatically turn off after one hour of disconnection.

3.7.3 Serial Settings

Address settings: The title bar displays 6-3, and the main display area displays Add. Short press Enterbutton to edit. It supports 1~112.

Baud rate settings: The title bar displays 6-4, and the main display area displays bAUd. Short press Enterbutton to edit. It supports 4800,9600,19200 and 38400, the default baud rate is 9600.

3.8 Operation Error Codes

When performing function operations or information editing on the screen, the pressure gauge will prompt in the form of error codes as the screen cannot display detailed text.

Table 7Operation Error Codes List

Error codes	Description	Solutions
001	Password wrong	Check the password
002	Parameter beyond the range	The entered value is beyond the gauge's range, enter a new value
003	Operation execution failed	Try it again

4.   Connect to Additel Link App

4.1 Download Additel Link

Additel Link is a mobile app available on Android and iOS system. It can connect to pressure gauges through Bluetooth, display real-time pressure reading and status, configure gauge parameters, switch pressure units, pressure zero, start/stop data log, download and view data from the gauge, calibrate pressure gauges and export CSV data for sharing.

Figure 27 QR code for downloading Additel Link

4.2 Enable the Bluetooth

Check and make sure the Bluetooth of the cell phone is enabled, then go to the gauge and long press Zero button to turn on/off the Bluetooth.

## 4.3 Connect to the Gauge

4.3.1 Scan the Code
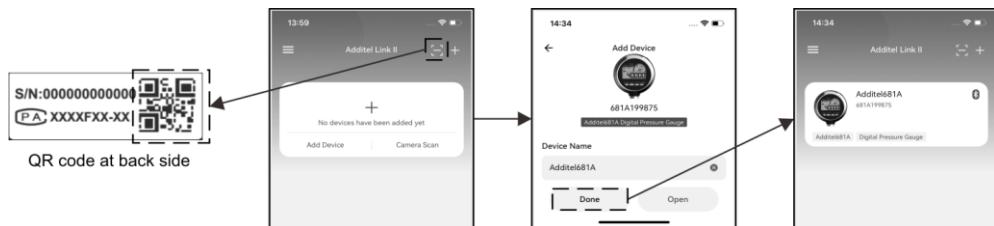

Figure 28 Scan code for connection
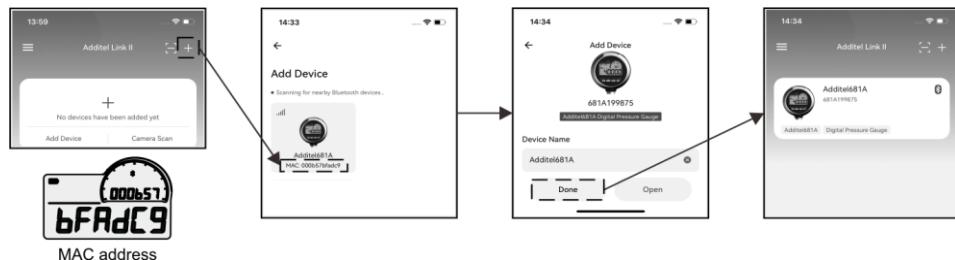
Figure 29 Manual search for connection

4.3.2 Manual Connection by Searching MAC Address

5. Copyright

Additel owns all copyrights to this system and reserves all rights. Please respect the rights of our company.

Appendix A：RS232 Module DB9 Pins Description
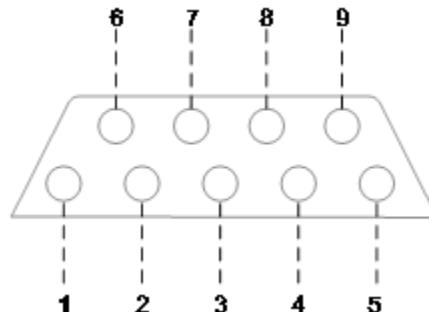
Figure 30RS232 module DB9 female pins description

Table 8RS232 module DB9 pins description

Pins	Description
1	Reserved
2	TXD
3	RXD
4	Reserved

5	GND
6	Reserved
7	Reserved
8	Reserved
9	Reserved

Appendix B: Special Notice for ADT681AEx Serial Connection

Any data download devices connected to the ADT681AEx shall be approved by SELV or Class 2 equipment against IEC 60950 or an equivalent IEC standard. The maximum voltage Um from the device shall not exceed 5.5 Vdc for USB port and 16 Vdc for RS232 port.

Appendix C：ADT681AEx EX-Proof Description

Conform below intrinsically safe certifications:

IECEx & ATEx：

⟨Ex⟩II1G

Ex ia IIC T4 Ga

Ta=-20℃to+50℃
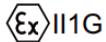
IECEx SIR 21.0018X

CSANe 21ATEx2078X

CSA：

Class I,Division 1,Groups A,B,C and D,T4

Class I,Zone 0,AEx ia IIC T4 Ga

CSA 21CA 80045682X

Ex ia IIC T4 Ga

Ta=-20℃to+50℃

Additel Corporation

2900 Saturn Street #B

Brea,CA 92821 USA

Phone: 714-998-6899

Email: service@additel.com

website: www.additel.com