DESCRIPTION

The Model PRD-700 is a digital pressure gauge controlled by advanced microprocessor. Itis a practical and economical solution to perform measures of pressure while maintain a good accuracy and reliability. To increase the level of integration of components has been used a mixed technology, traditional and SMT, that makes the indicator resistant to vibration and mechanical stress as well as ensuring the reliability of the circuit.

FEATURES

- 0.05%FS accuracy (0.02%FS and 0.01%FS is optional)
- Pressure ranges to 36,000psi (2500bar)
- Up to eleven selectable pressure units
- Five or six digital resolution display
- Percentage bars indication for visual reference.
- Backlight indicate time can be set
- Storage 10 files, 10 data per file
- Programmable digital filter, baud rate
- Zero function, Peak function
- Temperature display

FOR YOUR SAFETY

We had designed this device to ensure safe as long as it is used in compliance with the method described in these operating instructions. This device may only be used for the purpose indicated in these operating instructions. Ensure that the device is suitable with regard to the measurement range, implementation and specific measurement conditions before assembly, commissioning and operation. Ensure that all components used are functional and in good working order before the digital pressure calibrator is pressured. DO NOT USE THE RS232 IN THE HAZARDOUS.

If the malfunctions cannot be rectified with the aid of these operating instructions, the device must be taken out of operating immediately and secured against unintentional restart. Claims of any kind due to incorrect use are excluded. Repairs may only be carried out by the manufacturer. Tampering with or modifying the device is not permitted.

CAUTIONS

- Avoid using the device over-pressure on a long-term basis to avoid damaging the pressure sensor.
- Do not replace the battery in an area with hazardous explosives.
- Do not to connect RS232 cables in areas with explosives, Um=10VDC.
- In hazardous area, the device should be prevented from being impacted or falling.
- Don’ t position the device so that it is difficult to operate the disconnecting device.
- Plug of the external power adaptor is used as disconnect device.
- Prohibited for a long-time outdoor use to avoid water or rain.
- The device may not be covered under warranty if used in manner not specified by the manufacturer.

SPECIFICATION

- Pressure range: (- 1 ~ 2500) bar, see below sheets;
- Accuracy: 0.05% FS (0.02%FS is optional);
- Storage temperature: (-20 ~ 70) ℃;
- Operating temperature: (0 ~ 50) ℃;
- Compensation temperature: (0 ~ 50) ℃;
- Relative humidity: <95%RH (no condensation)
- Atmosphere Pressure: (86 ~ 101) kPa;
- Media: Clean and dry and no-corrosive gas or liquid which is compatible with 316SS
- Pressure types: Gauge pressure, absolute pressure, differential pressure, compound pressure

Gauge Pressure					
P/N	Pressure (psi)	Pressure(bar)	Accuracy(%FS)	Media	Burst Pressure
V15	-15	-1.0	0.05	G	3 X
GP2	2	0.16	0.1	G	3 X
GP5	5	0.35	0.1	G	3 X
GP10	10	0.7	0.05	G	3 X
GP15	15	1.0	0.05	G, L	3 X
GP30	30	2.0	0.05	G, L	3 X
GP50	50	3.5	0.05	G, L	3 X
GP100	100	7.0	0.05	G, L	3 X
GP300	300	20	0.05	G, L	3 X
GP500	500	35	0.05	G, L	3 X
GP600	600	40	0.05	G, L	3 X
GP1K	1,000	70	0.05	G, L	3 X
GP2K	2,000	140	0.05	G, L	3 X
GP3K	3,000	200	0.05	G, L	3 X
GP5K	5,000	350	0.05	G, L	3 X
GP10K	10,000	700	0.05	G, L	2 X

GP15K	15,000	1,000	0.1	G, L	2 X
GP25K	25,000	1,600	0.1	G, L	1.5 X
GP36K	36,000	2,500	0.1	G, L	1.5 X

Note: For 0.01%FS and 0.02%FS accuracy, please contact with us. The compensation temperature for 0.01%FS and 0.02%FS is 20±5℃. The compensation temperature for 0.05%FS is 0~50℃. Sealed gauge pressure for above 70 bar. G= gas, L = liquid. The media is gas when the pressure is less than 2.5bar

Absolute Pressure					
P/N	Pressure(psi)	Pressure(bar)	Accuracy(%FS)	Media	Burst Pressure
AP25	25	1.6	0.1	G	3 X
AP30	30	2.0	0.1	G	3 X
AP50	50	3.5	0.1	G	3 X
AP100	100	7.0	0.1	G, L	3 X
AP300	300	20	0.1	G, L	3 X
AP500	500	35	0.1	G, L	3 X
AP1K	1,000	70	0.1	G, L	3 X
AP3K	3,000	200	0.1	G, L	3 X
AP6K	6,000	400	0.1	G, L	3 X
AP9K	9,000	600	0.1	G, L	3 X

Note: G= gas, L = liquid

Differential Pressure					
P/N	Pressure(in H2O)	Pressure(mbar)	Accuracy(%FS)	Media	Burst Pressure
DP10	10	10	1.0	G	3 X
DP25	25	25	0.5	G	3 X
DP20	20	50	0.2	G	3 X
DP30	30	100	0.2	G	3 X

Note: G= gas. FS specification applies to the span of the range. Accuracy includes one-year stability.

Compound Pressure					
P/N	Pressure(psi)	Pressure(bar)	Accuracy(%FS)	Media	Burst Pressure
CP10	! 10	! 0.7	0.05	G	3 X
CP15	-15 to 15	! 1	0.05	G	3 X
CP30	-15 to 30	-1 to 2	0.05	G	3 X
CP300	-15 to 300	-1 to 20	0.05	G	3 X
CP600	-15 to 600	-1 to 40	0.05	G, L	3 X

Note: G= gas, L = liquid. FS specification applies to the span of the range.

Electric Measurement		
Item	Range	Accuracy
Current DC	! 30.000mA	! (0.01%RD+0.003%FS)
Voltage DC	! 30.000V	! (0.01%RD+0.003%FS)
Current Source	DC24V (max. 50mA)	! 0.5V

Display: Dual lines LCD display
Display rate: 3 readings per second
Overpressure load: 120%FS
Pressure units: kg/cm2, inHg, inH2O, Pa, kPa, MPa, bar, mbar, psi, mmHg, mmH2O etc.
Power: 7.4V rechargeable lithium battery, or 110/220V external power adapter
Battery working time: 40 hours w/o loading 24V, 8 hours w/24V loading.
Communication: RS232 (Do not use RS232 in hazardous environment)
Case Material: Aluminum alloy
Wetted parts material: 316SS
Pressure connection: M20x1.5, ¼'' BSP, ¼'' NPT; 1/2'' NPT, 1/2'' BSP
Dimensions: Header (Φ115 × 43) mm, total length 190mm;
Net Weight: 1kg

PREPARATION

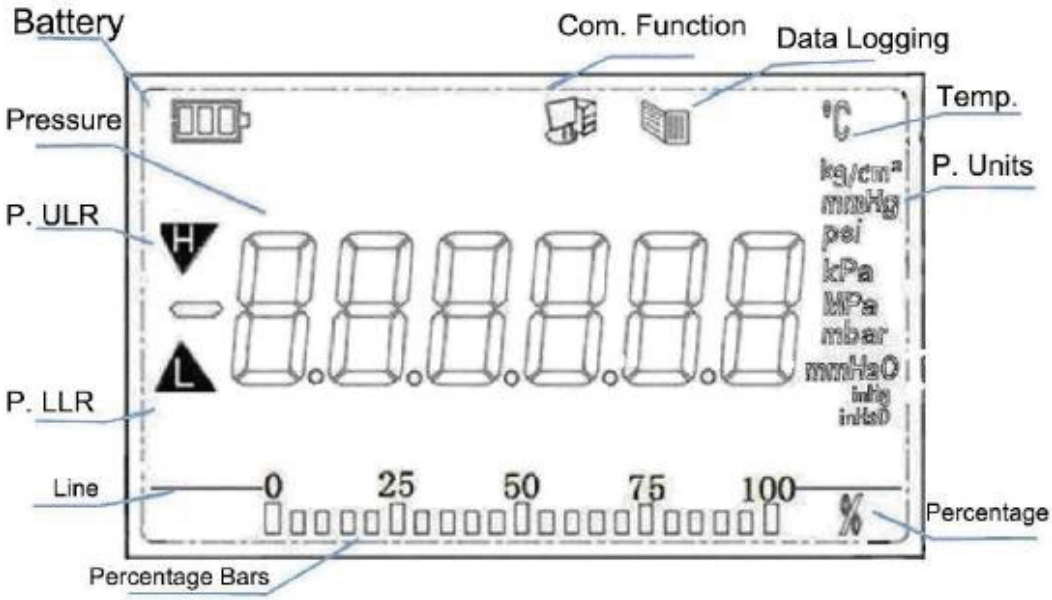
Check the package contents following delivery of the SPMK700 using following list:

1. Digital pressure gauge PRD- 700
2. Li-ion rechargeable battery
3. 110V/220V external power adapter
4. Operating instruction
5. Factory calibration report or Accredited calibration certificate

CONFIGURATION

Appearance

Screen instruction



Button operating instruction


Power ON/OFF;


Setup menu;


Pressing it to turn on/off the backlight;


Pressing it to measure the temperature;


Pressing it shortly for select the different pressure units;


Pressing it shortly for checking consecutive pressure fluctuation;

Pressing it and hold for switch pressure readings 3 digits, 4 digits and 5 digits In data logging menu, pressing it to log data;


Pressing it for pressure zero (The range of gauge/differential pressure: ±1% FS)

Zeroing the absolute pressure need a barometer reference.

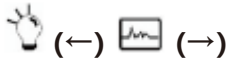
Menu operation Introduction

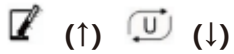

Enter/Exit setup menu;


(↑) (↓) Move menu upper and down;


Enter function.

7.5 Data Inputting Introduction


(←) (→) Move decimal digit left and right;


(↑) (↓) Increase/ decrease the pressure value;


Confirm the inputting data;


Cancel the inputting data.

SETTING MENU INTRODUCTION

Press the HOME button to enter into setup menu, there are 7 items:

1. PEEK (Peak record setting);

2. FILE (Data logging setting);

SEE (check the current file content);

DEL (delete the current file);

F_SET (input UUT’ s series number);

A_DEL (Delete all files);

F_SEL (Turn of or turn off the file checking function);

F_NO (select the file number);

3. RS232 (RS232 communication setting);

ADD (select address range from 1 to 12);

BAU (Baud rate, includes 1200, 2400, 4800, 9600);

CONN (communication mode);

(**1. NPOLL:** Manual pull mode);

(**2. APOLL:** auto poll mode);

SEL (Turn on/turn off the communication function);

4. LEO (Backlight setting);

0-10 (turn off the back light after 10 seconds);

0-30 (turn off the back light after 30 seconds);

0-60 (turn off the back light after 60 seconds);

5. CAL (Calibration);

P_0 (Factory default calibration);

P_1 (New calibration effected);

6. SLEEP (Auto turn off setting);

ON (turn on auto-off function);

OFF (turn off auto-off function);

7. O_FS (Reboot factory default).

Pressure peak value record

Press HOME button to enter into setup menu, find the 1. PEEH (peak).
Press ENTER button to check the high peak pressure record and low peak pressure record on the main menu. Example: High peak pressure is 10324 psi, low peakpressure is -8 psi.

Pressure (□) to move the menu upper and down

Note: On the peak value menu, press zero button to reset the peak values.

Data logging setting

Press the HOME button to enter into setup menu, find the item 4. FILE (Data logging).
Pressing ENTER button to select pressure switch trigger modes:

-**1. SEE** (check the current file content);
-**2. DEL** (delete the current file);
-**3. F_SET** (input UUT’ s series number);
-**4. A_DEL** (Delete all files);
-**5. F_SEL** (Turn of or turn off the file checking function);
-**6. F_NO** (select the file number);

How to log the data:

-Step 1: Press HOME button →**5. F_SEL**→ turn on the data log function;

-Step 2: Press the HOME button →**6. F_ON**→select the file number;

-Step 3: Press the DATA LOG button to log the instant pressure data;

-Step 4: The total data in each file are 40, total files are 40.

How to check the data content:

Step 1: Press HOME button →**5. F_SEL**→turn on the file checking function

Step 2: Press HOME button →**6. F_ON**→ select the file number

Step 3: Press HOME button →**1. SEE**→check the file content

Step 4: Press buttons (↑) (↓) to check each data (total 40 data per file)

Step 5: Press HOME button to quit menu.

RS232 communication setting

Press the HOME button to enter into setup menu, select the item **3. RS232** and press to set up the RS232 communication setting:

- **1.ADD** (select address range from 1 to 12);
- **2.BAU** (Baud rate, includes 1200, 2400, 4800, 9600);
- **3.CONN** (**1. NPOLL**: Manual pull mode, **2. APOLL**: auto poll mode);
- **4.SEL** (Turn on/turn off the communication function).

Backlight setting

Press HOME button to enter into setup menu, select the item **4. LEO** and press ENTER button to set up the RS232 communication setting:

- **1. 0-10** (turn off the back light after 10 seconds)
- **2. 0-30** (turn off the back light after 30 seconds)
- **3. 0-60** (turn off the back light after 60 seconds)

Calibration

Press HOME button to enter into setup menu, select the item **5.CAL**. Pressing ENTER button to select the calibration function.
Environmental condition for calibration:

- Ambient temperature: (20 ±2)℃
- Relative humidity: (45~75) %RD
- Atmosphere: (86~106) kPa avoiding external electromagnetic interference

Pressure calibration method:

- Two points calibration: Lower limit, upper limit
- Tri points calibration: Lower Limit, middle value, upper limit
- Multi-points calibration: Lower Limit value, ..., upper limit value (Note: For compound pressure calibration: the zero point should be included)

Pressure calibration: **P_0** (Factory default calibration); **P_1** (New calibration effected) A pressure calibration example

Unit under test: PRD-700-GP100-05-BAR-N, (0 to 7) bar, 0.05%FS;

Reference: A pneumatic deadweight tester, 0.01%Rd

-Step 1: Connect PRD-700 with deadweight tester
- Step 2: Pressing home button →5. CAL →P_0 →Calibration menu
- Step 2: Make deadweight tester open to atmosphere and zeroing
- Step 3: Make PRD-700 open to atmosphere and push and **P zero** button for zeroing, the calibration is affected if **P_0** changed to **P_1**.

-Step 4: Pressing ENT↵ER buttonto correct the 0-bar pressure point of PRD-700.
- Step 5: Generate pressure to 7 bar on deadweight tester
- Step 6: Pressing the ENTER button ↵ to correct 7 bar pressure point of PRD-700, the calibration is affected if **P_0** changed to **P_1**.

How to cancel the pressure calibration: On the menu of **P_1**, pressing **P zero** button to make the **P_1** changed to **P_0**.

Sleep function

Press HOME button to enter into setup menu, select the item **6. SLEEP**. Pressing ENTER button to select the sleep function on (**1. ON**) or sleep function off function (**2.OFF**).

Factory default setting

Press the HOME button to enter into setup menu, select the item 11.O_FS and press button to restore the factory default setting.

PRESSURE UNITS

Pressure units: The pressure units can be switched by the sequence of kg/cm2, inHg, inH2O, Pa, kPa, MPa, bar, mbar, psi, mmHg, mmH2O. In order to avoid the readings overflow or too low to read, only some of pressure units are selected. The conversion relation as below:

mmH2O	mmHg	mbar	bar	psi	Pa	MPa	kPa	inHg	inH2O	kgf/cm2
101.97162	7.50062	10	0.01	0.1450377	1000	0.001	1	0.2953	4.01463	0.010197

PRESSURE ZEROING

Before test, always be zero the pressure.

- Pressure zeroing: The range of gauge/differential pressure: ±1% FS, zeroing theabsolute pressure need a barometer reference
- Voltage zero: The range of voltage is ±0.05% FS
- mA zero: The range of current is ±0.05% FS

MAINTENANCE/REPAIR

Upon final installation of the Series PRD-700, no routine maintenance is required. TheSeries PRD-700 is not field serviceable and should be returned if repair is needed. Fieldrepair should not be attempted and may void warranty.

WARRANTY/RETURN

Refer to "Terms and Conditions of Sales" in our marketing policy and on our website. Contact customer service to receive a Return Goods Authorization number before shipping the product back for repair. Be sure to include a brief description of the problem plus any additional application notes.