

VCT160N split type digital Pirani vacuum gauge

## Manual (Quick Version)

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### 1 Safety Issues

PRG500 is a precision instrument for vacuum measurement, and its internal sensors are susceptible to damage under the following conditions

1) Withstand shock vibrations, such as accidental falls, if the drop height exceeds 0.8 meters, then the probability of sensor damage is greater than 80% when the;

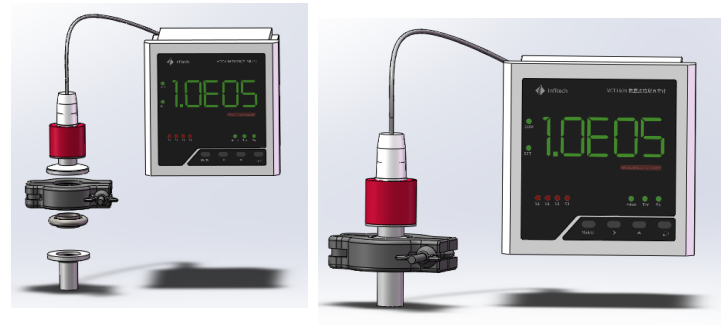
2) The tested medium gas contains strong oxidizing or corrosive components, making the sensor vulnerable to damage ;

3) While the protect plate in front of the flange inlet is missing, and withstand strong airflow impact, making the sensor vulnerable to damage ;

Therefore, it is necessary to check and avoid the occurrence of the above three situations before installing and using the vacuum gauge. The product damage caused by the above situations is not covered by the warranty.

### 2 Installation method

1) Standard KF16 flange installation



2) Please consult the manufacturer for other connection methods

### 3 Panel Layout Description



#### Vacuum data reading method

The vacuum data is displayed by Scientific Notation by default, The values shown in the above figure represent 1.0E+5Pa. Convert the Scientific Notation vacuum data to normal data as follows :

Vacuum =coefficient × The exponential power of 10

For example :

$$1.0E05=1.0 \times 10^5=1.0 \times 100000=100000Pa$$

$$3.2E03=3.2 \times 10^3=3.2 \times 1000=3200Pa$$

$$2.5E00=2.5 \times 10^0=2.5 \times 1=2.5Pa$$

$$1.8E-1=1.8 \times 10^{-1}=1.8 \times 0.1=0.18Pa$$

#### Description of indicator light

COM—Communication indicator light, flashing during RS485 communicating

SET—Set Mode Light, always on during the set mode

S1-S4—Indicator light for relay switch

mbar,Tor,Pa—Indicator light for unit

### 4 Button operation

**MENU** — Activate the menu and switch between options in the menu or submenu

— Switch data activation position when modifying data or switch units when modifying display units

—Modify the value of the current activation location data and switch between 0 and 9

—Confirm button, confirm the selected option or operation, and exit the setting mode

#### Function Code Description

Function Code	Description
ATP	atm calibration
HUC	vacuum calibration
SP1H	1 # Set point upper limit
SP1L	1 # Set point lower limit
SP2H	2 # Set point upper limit
SP2L	2 # Set point lower limit
SP3H	3 # Set point upper limit
SP3L	3 # Set point lower limit
SP4H	4 # Set point upper limit
SP4L	4 # Set point lower limit
U	Exchange display unit
d	Exchange data display mode
Ad	Modify 485 slave address
dFL	Exchange display unit

#### Using Switching Vacuum Units as an Example to Explain Menu Operation

**Step1** : Long press MENU until the SET light is on to enter the setting mode.

**Step2** : Short press the MENU key to switch between various menu function codes until U appears.

**Step3** : Press the OK button to confirm the unit switching operation.

**Step4** : Press the right key (second key) to switch between different units, and the corresponding unit's LED light will light up when switching.

**Step5** :When the desired unit appears, press the OK key to confirm the selection, and the screen will automatically exit the setting mode. The new vacuum value will be displayed in the previously selected unit

Explanation on Setpoint:

VCT160N can adopt single point control or interval control. When using single point control, the upper or lower limits of the interval can be set to 0, which defaults to single point control. If both the upper and lower limits of the interval have values, it is interval control.

The delay feedback of single point control is 10%, for example, setting the control point to 100Pa. The control point is triggered when the vacuum drops to 100Pa. When the vacuum degree returns to 110Pa (100Pa \* 10%), the control point is restored.

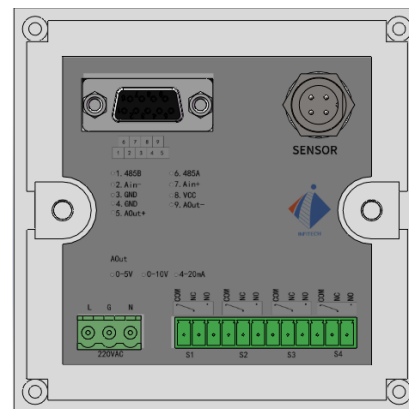
Regarding the setting of the upper and lower limits of the interval, theoretically, the higher the vacuum degree, the smaller the pressure value, so the value set at point H will be smaller than that at point L. In fact, the program will automatically determine. Take a larger value as the lower limit of vacuum degree and a smaller value as the upper limit of vacuum degree, forming an interval.

#### Explanation on 485 address

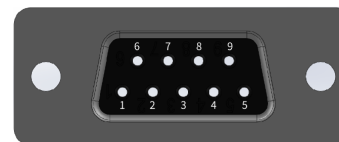
The default 485 address is set to 1 when leaving the factory.

#### 5 Wiring diagram

The DB9 in the upper left corner is the communication output port. The upper right corner is the probe cable connection socket (Four pin aviation plug male sockets). The lower left corner is the 220V power supply wiring terminal. The wiring terminals for the four control points are located in the lower right corner.



The detailed wiring diagram of the communication output port is defined as follows:



6:485A/485 output A 7:Ain+/Analog In+ 8:VCC/24V voltage output 9:Aout-/Analog output-  
1:485B/485 output B 2:Ain-/Analog In- 3:GND 4:GND 5:Aout+/Analog output+

#### 6 Formula for Analog Output

$$P = 10^{(V-3.572)/1.286}$$

here :

P—Vacuum, unit Pa

V—Analog voltage, unit V

## 7 Calibration Method

Calibration for atmosphere:

- 1) Ensure that the vacuum gauge sensor is at atmospheric pressure (if the vacuum gauge is already installed on the flange, it is necessary to ensure that the connected pipeline or chamber is depressurized to atmospheric pressure),
- 2) Long press the MENU button until the SET light is on, call up the function code ATP, and press the OK button to select,
- 3) Atmospheric calibration begins, and the LED flashes with ATP, indicating that calibration is in progress.
- 4) After calibration is completed, the interface will automatically exit the setting mode and display real-time vacuum degree.

Calibration for high-vacuum:

- 1) Ensure that the vacuum gauge sensor is in a vacuum environment below 0.01Pa,
- 2) Long press the MENU button until the SET light is on, call up the function code ATP, and press the OK button to select,
- 3) High-Vacuum calibration begins, and the LED flashes with HUC, indicating that calibration is in progress.
- 4) After calibration is completed, the interface will automatically exit the setting mode and display real-time vacuum degree.

### Notes :

- (1) The vacuum gauge needs to be powered on for 5-10 minutes to ensure that the vacuum gauge sensor is in a stable state;
- (2) Before calibration, it is necessary to confirm the vacuum status to ensure that the vacuum is either below 0.01Pa or in the atmosphere. When the button is pressed, the vacuum gauge will automatically recognize and perform corresponding high-vacuum or atmospheric calibration. If the vacuum state is incorrect, it will cause the calibration of the vacuum gauge to be incorrect.

## 8 GaugeReader Software

Install GaugeReader software (free) on the computer, and then connect to the vacuum gauge with InfiGuageCon data acquisition module (paid, optional) .

You can read the vacuum degree value through data communication, set control points, modify the 485 communication address, etc., [The GaugeReader software can be downloaded through the official website www.infitech.cn.com](http://www.infitech.cn.com).

## 9 To get more support

Log in to the official website or scan the WeChat public account at below (recommended), reply "PRG500" you can get the detailed version of the PRG500 manual and other related information about the product. All the latest updated information will be published on the WeChat public account and the company's official website as well.



## 10 Warranty

The produc... the date of receipt, and the components directly in contact with the vacuum are not covered by the warranty. In addition, tearing off the warranty seal is invalid and may result in automatic loss of warranty eligibility.

## 11 Contact information

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