INSIZE

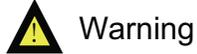**www.insize.com**

**ALT-P150
AIR LEAKAGE TESTER
OPERATION MANUAL**

PLEASE SCAN QR CODE TO
WATCH OPERATION VIDEO
OF THE PRODUCTS.

VIDEO

INSIZE

Safety Warning

⚠ Warning

1. Make sure there is a ground line in your power supply. The power supply should be AC 220V.
2. Except factory engineer, do not to open the main case to avoid electric shock or a non-repaired damage.
3. Keep the power plug dry and clean to avoid fire and electric shock.
4. Cut off the power supply when the tester drop down or water, oil get in in accident. And avoid set up the system beside of water.
5. The air supply should be within 0.4Mpa to 0.8Mpa.
6. When bellowing happened, stop operation and contact with engineer:
   * smoking
   * unnormal noise
   * misoperation even under the user guider.

Part 1 Preparatory and Installation

1. Open the case

1.1Preparatory

a) Compressed air supply, pressure 0.4MPa to 0.8MPa;
b) Stable and reliable working table;
c) Power supply, AC 220V(±15%),50Hz
d) Connect the power cable, air pipe, test pipe, 25pin data cable

2. Constitutes of the tester

2.1 Front

Handle
Screen
Stop button/NG light
Alarm
Foot×4
Start button/OK light

P1-1

2.2 Back

Pressure adjustment
Test port
Power switch
Power cable
Gas inlet
Gas pressure regulator
RS232/485 interface
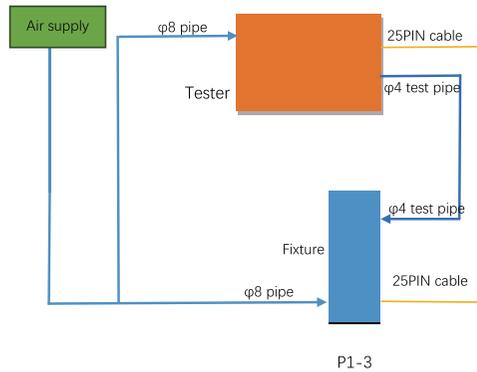25PIN I/O interface

P1-2

3 . Installation

3.1 working environment

a) Temperature 26℃±10℃；
b) Avoid big wind；
c) Work table should be stable and reliable；

3.2 power/air supply connect

a) First ensure the tester and fixture are well placeed in work table，and connect the power cable；
b) φ8mm air pipe connect to tester and fixture.
c) φ4mm test pipe connect to test mould；
d) connect the 25pin data cable between tester and fixture；
e) turn on the power switch.

3.3 connections between tester and fixture

Air supply
φ8 pipe
25PIN cable
Tester
φ4 test pipe
φ4 test pipe
Fixture
φ8 pipe
25PIN cable

⚠ warning
Before connect the air supply, please ensure the air supply is cut off.

P1-3

φ4 test pipe
φ8 air supply pipe
Power supply
φ8 air supply pipe
φ4 test pipe, connect to test mould
25PIN data cable, connect to tester
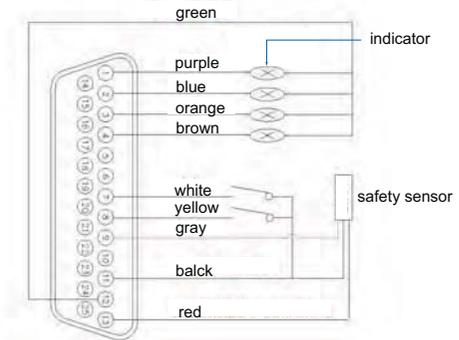
P1-4

3.4 25pin data cable introduction

a) internet port, use to connect to computer (optional function) ；
b) USB port：for test data download or barcode scanner (optional function) ；
c) RS232/485 port：for computer connect；
d) 25PIN I/O port：communication between tester and fixture；

green
purple
blue
orange
brown
indicator
white
yellow
gray
safety sensor
balck
red

P1-5   25 PIN I/O port

No.	function	No.	function
1	Output 1 (purple)	2	Output 2 (blue)
3	Output 3 (pink)	4	Output 4 (brown)
5	Output 5	6	24V DC
7	start (white)	8	stop (yellow)
9	Safety sensor (gray)	10	Proximity switch
11	GND (black)	12	GND (green)
13	24V DC (red)		

output：24V DC，max 0.5A.
input：NPN.

P1-6   RS232/485 serial port

No.	Definition	Definition to the connected device
2	232_TX	232_RX
3	232_RX	232_TX
5	GND	GND
7	485_A	485_B
9	485_B	485_A

Notes：when use serial port to connect to computer, the cable connect is 2 to 2, 3 to 3, 5 to 5.

Part 2 Display Introduction

1.Main Page

1.1 power on

A
B
C
D
E

F
G
H
I
J
K
L

P2-1

Explain:

A Return
B Pre-settings
C Program settings
D System settings
E Factory settings
F Test page

G Date
H Test data record
I Barcode scan settings
J PC connection settings
K Test page
L Login

2.Login

"Login" include user login、password modify、user create/delete

2.1 procedure

First you should login to get the operate permission.

P2-2

P2-3

2.1.1 User explain

a) admin: manage all the functions
b) operator: only operate, can't modify the test parameters;
c) engineer: can operate and modify the test paremeters;
d) Factory engineer: factory settings, not opened.

2.1.2 Password

a) admin: 35689
b) operator: 8888
c) engineer: 123456

⚠ **warning**

If you want a new password, Please create and memorize

2.2 mofidy a new password？

Click to type in present password in the first table and type in new password two times in the followed two tables.

3. Pre-settings

P2-4

3.1 Display Mode:

a) DIGI：show a table when test;
b) CURV: show a pressure curve.

P2-5

3.2 Start Mode:

a) FIXT：start the test with start buttons in fixture only;
b) INST：start the test with start buttons in test and fixture;

3.3 Language select:

a) English
b) Chinese

3.4 Unit select

Suggest kPa as the unit

3.4.1 Units

a) kPa
b) Pa
c) kgf/cm^2
d) psi
e) mmH$_2$O
f) bar
g) mbar
h) mmHg

3.4.2 Unit table

Unit	kPa	Pa	kgf/cm^2	psi	mmH_2O	bar	mbar	mmHg
1kPa	1	1000	0.0101972	0.1450377	101.972	0.01	10	7.500612
1Pa	$1x10^{-3}$	1	$1.02x10^{-5}$	$1.45x10^{-4}$	0.101972	$1.0x10^{-5}$	0.01	0.007501
1kgf/cm^2	98.0665	98066.5	1	14.2233	10000.037	0.98066	980.7	735.5592
1psi	6.89476	6894.76	0.07030	1	703.07216	0.068947	68.95	51.71493
1mmH_2O	0.00981	9.80661	$1.0x10^{-4}$	0.0014223	1	$9.81x10^{-5}$	0.098	0.0735557
1bar	100	$1x10^5$	1.0197162	14.503774	10197.2	1	1000	750.06168
1mbar	0.1	100	0.00101	0.0145038	10.1972	0.001	1	0.7500617
1mmHg	0.13332	133.322	0.00135	0.01933	13.59514	0.00133	1.333	1

3.5 Resolution select

a) 0.0000
b) 0.000
c) 0.00
d) 0.0
e) 0

Suggest select 0.000 because tester resolution is 1Pa, so when we select Kpa
as unit, 0.000 is the resolution---Pa.

3.6 Pressure

Current pressure

3.7 Press zero;

Before you click this button, ensure the test pipe is open to the
atmosphere, Meams set the atmosphere as pressure zero.
If you make a mistake here, please open the test mould or the test pipe
to atmosphere and click Press zero again.

3.8 POSI----positive pressure

Seal the test pipe first(fold it and handle), then click POSI, it will
output a pressure, you can adjust it by the regulator on the back. This is the
positive pressure it will output.

3.9 Nega----negative pressure

Seal the test pipe first(fold it and handle), then click Nega, it will
output a pressure, you can adjust it by the regulator on the back. This is the
negative pressure it will output.

4. Program---program settings

"Program" include test type set, time parameter set, pressure parameter set, and output signals set.


P2-6

4.1 Test type

a) pressure: current program judge products by pressure decay;

b) flow: current program judge products by air flow;

4.2 Test function

a) POSI: current program output positive pressure;

Nega: current program output negative pressure;

b) **Direct:** apply to products which have a filling port, filling pressure into the products directly, as below; in this mode, the pressure filling to tested will equal to the pressure set in Pre-set.

pressure   ele-valve

pressure sensor

LEAK

tested sample
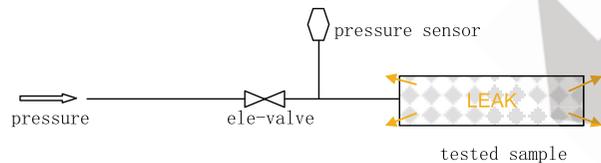
Indirect: apply to products which dont have filling ports, filling pressure into the gap between the product surface and the test mould; as below; in this mode, the pressure which have been set in Per-set will first filling into the gasholder then cut off, so the gasholder' volume is a constant, and the pressure is rated, so the amount of compressed air it get is equal everytime. Then the gasholder filling pressure into the gap between the test mould and tested. By this way, the compressed air filling into test mould is equal in every test.

Pressure sensor

pressure   ele-valve   ele-valve

tested sample

LEAK

gasholder   test mould
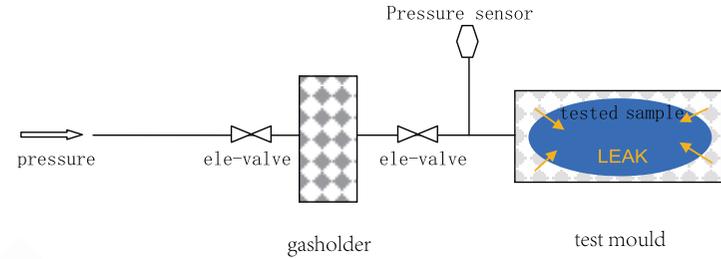
This is the most important, please ensure you have understand this.

Why we should use a gasholder to filling for products which not have filling ports? For example, if the tested is leaking very very big, and we filling in the direct way, so both the test mould and the tested will be fully filled, then how the pressure leak as there is no pressure difference any longer? But if we use a gasholder and filling as indirect way, when the tested is ok, then means all the air we filling will get into the gap, so the pressure we get is higher; when the tested is leaking very very big, means the air we filling will get into the gap and the insaid of the tested, so the pressure we get is low, than we can know it is a fake by this pressure.

The followed two buttons please select Leak and Deff, the function you won't use, so not explain here.

4.3 Additional function

a) Small: when the tested volume is very small$(Vol \leqslant 2ml)$, open this function.

b) Pressure: according pressure decay to judge tested OK/NG;

c) Blasting: test the biggest pressure the tested can support, will record the pressure rate;

d) Block: test if the tested is blocked somewhere;

4.4 Time parameter

a) Filling: Under direct mode, means the time tester filling into products; Under indirect mode, means the time tester' gasholder filling into test mould. Suggest 5 to 10 seconds.

b) Stable: the time let the pressure get stable; Suggest 5 to 10 seconds.

c) Testing: test time, the pressure sensor begin to monitor pressure decay. Suggest more than 5 seconds.

d) Exhaust: time for exhausting the air pressure when test finish;

e) Pre-fill: time for filling into gasholder, only under indirect mode this should be set, suggest 3 to 5 seconds;

f) Fixture: delay to start, usually 0

4.5 Pressure parameter

a) Input press: test pressure filling into;

b) Press max: the max pressure;

c) Press min: the min pressure; it is a reject rate for products which leaking very big, because when filling, it is leaking, so the pressure can't reach target;
under direct mode, usually it is 70% to 90% of the test pressure you wanted;
under indirect mode, you should test with a good product and observe the pressure it reached, then test with a big leaking product and observe the pressure it reached, then set a Press min between this two pressure rate;

d) Leak max: the biggest leak allowed; it is a reject rate for small leaking. means when a product filling pressure can reach target, so there is no big leak, but still can't sure if there is a small leak, So this reject rate right for this.
Usually we should test some samples and write down their leakage, then drop this samples into water to pick out the fakes then you can find the Leak max you can allowed; or drop the samples into hot water, because hot water will inflate the gas in samples and bubbling out, so the bubbling piece is fake, no bubbling piece is OK, then you can find out a Leak max; or you can analyse the test data to find out a leak max as below if it show you a normal distribution.

pcs

OK   NG

leakage
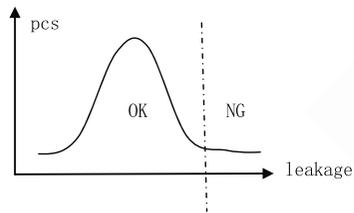
e) Leak min: theoretically it is 0, usually set -0.1;

f) Leak speed: according to the volume of filling space, calculate by tester automatically;

g) Volume: the volume of filling space, if set, tester will calculate leak speed; when test type choose flow, this must set;

h) Next: the next program continue to run. if Next is same with the current program No., then test will finish when this program run to the end; if Next is others, then when this program run over, it will continue to run the next;

4.6 Output

Output signals control, it can output/input 4 signals and control the actions. For example, now there is a cylinder in our fixture, we want it clamp when test start and reset when test finish, so the first signal should set On in Before test and set off in after test.

You can set a delay time for the signals to control the actions in order if there are many cylinders.

P2-7

4.7 Buttons in the top of program page.

a) Return: return to main page;

b) NO.0: current program No.;

c) Program0: program name;

d) Search: select a program; 100 programs can be saved totally;

e) Test: enter to test page;

4.8 Buttons in the bottom of program page

a) Last/Next: last program/ next program;

b) Super reset: reset current program;

c) save: your should save after you change program setting

d) save as: copy current program to other;

5. System Setting

5.1 Settings

P2-8
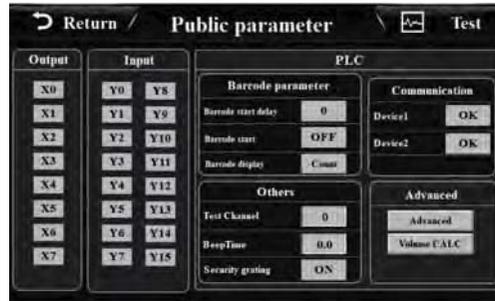
5.2 Output

a) Y11: output 1
b) Y12: output 2
c) Y13: output 3
d) Y14: output 4
e) Y15: reserved signal

5.3 Scanner

a) Barcode start delay: delay to start the test after scan;
b) Barcode start ON/OFF: allow/forbid to start the test after scan
c) Barcode display : Count—numbers 1,2,3……and save in History
   Barcode --barcode and save in History

5.4 Others

a) Test channel: 1, do not change
b) Beep time: time for beeper;
c) Security grating: On—security grating in fixture in work
   Off—security grating in fixture disabled

5.5 Communication

a) Device 1: normal OK
b) Device 2: normal OK

5.6 Advanced—please operate under the guide of factory.

5.6.1 Volume CALC

Calculate the filling volume so that you can set it in Program volume.

a) Modify program No.99, because it use No.99 to calculate;
b) Type tester current output pressure you set at Pre-set page;
c) Click Volume CALC and wait;

6. History

You can read device history data and download to a flash drive(FAT32).

P2-9

7. Barcode scan

This is an optional function.

8. PC connect

This is an optional function.

13

14