

**Q614nd Leak Detector
User Manual**

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Warnings and Cautions

This section explains the warnings and cautions that should be observed when installing or operating the Qualitek.

Safety information is covered at relevant points throughout the manual. Please read this manual in its entirety before installing or operating the instrument. Should any point remain unclear, contact your supplier for assistance before proceeding.

Suitably trained personnel design the Qualitek for installation and use in an industrial environment.



Areas of the equipment that display this symbol are potentially hazardous. Consult the appropriate section of the user manual in respect of the specific hazard.

The Qualitek must be connected to a power supply of 185-260V 50-60 Hz.

Only personnel trained to avoid the risk of electric shock should remove the covers on the equipment. The mains power supply to the equipment must be switched off and disconnected before removing any covers.

Do not substitute the fuse rating. Always use the correctly rated fuse. Failure to do so may be hazardous and can cause damage to the equipment.

Do not make or break external connectors or connections while the Qualitek is switched on.

The component to be tested, and the air supply line to the Qualitek, must be free from water or liquid residue before testing, otherwise damage may be inflicted on the sensitive transducer within the instrument.

1.0 Installation and Requirements

1.1 The Q614nd

The Q614nd pressure decay leak detector forms an integral part of quality control, by providing a cost effective solution for detecting leaks in gas appliances, fitting and a wide range of small components.

The Q614nd is a highly accurate, simple to use leak detector, which can be controlled using a simple menu system. This allows for quick, simple and accurate leak detection of common parts.

As the Q614nd is a continuous leak detector, simply connecting the part to the test port starts the operation. Pass or reject is then indicated by the lamps on the front panel along with the leak measurement.

The Q614nd allows for variations in many of its parameters, providing the user with an accurate simple system for various test parts and uses.

1.2 Unpacking

The Q614nd is supplied with the following components. If any component is missing please contact your supplier.

- User manual
- 240 V Power lead
- Display Cable
- Tester pneumatics
- Computer and work station

1.3 Installation Requirements

This section deals with the installation requirements of the Q614nd.

1.3.1 Location

The Q614nd should be positioned as near as practicable to the test piece. Due to the sensitivity of the machine, the system should be installed away from heaters and draughts. The system should also be installed horizontally and free from vibration.

Where the Q614nd is supplied as a two piece unit, the Display should be mounted where it suits the operator; and the Gas Box as close as possible to the test piece.

1.3.2 Power Supply

The Q614nd must be run at 220/240V, which connects to the rear of the display

1.3.3 Operating Conditions

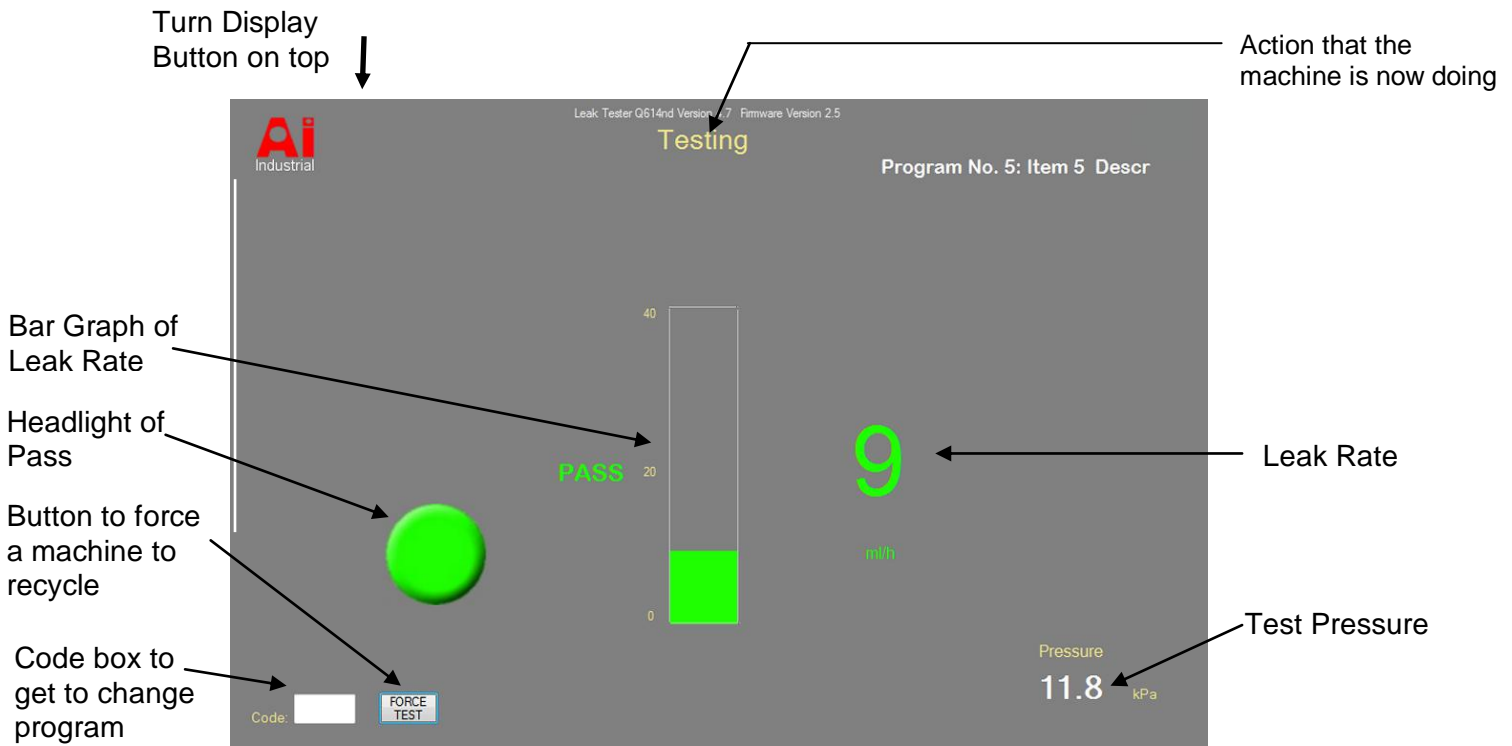
The Q614nd will operate in the temperature range between 5°C and 45°C (41°F to 113°F). The air supply must be clean, dry compressed air with a minimum pressure of 450 kPa.

1.3.4 Pneumatic Connections

The test component and air supply should be connected to the appropriate ports using 6mm nylon tubing. See section 3.0 for Rear Panel Layout.



2.0 Front Panel Layout

This chapter gives a general introduction to the front panel of the Q614nd
The figure below shows the front panel layout.



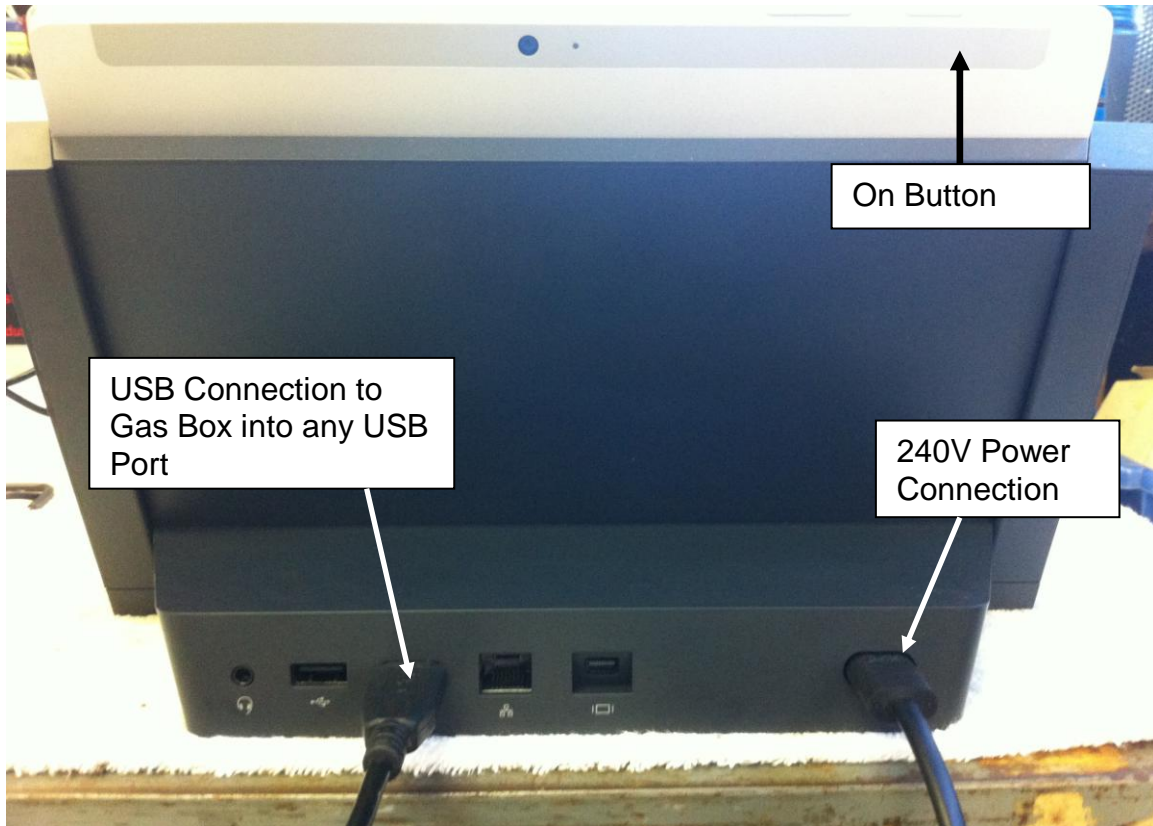
2.1 Front Panel Buttons

The functions of the front panel buttons are as follows:

-  If required the Q614nd can be forced to recycle.
- Code  Entry point to change test parameters

2.2 Turn On Button

Connecting the 240VAC and USB Gas Box to the work station.

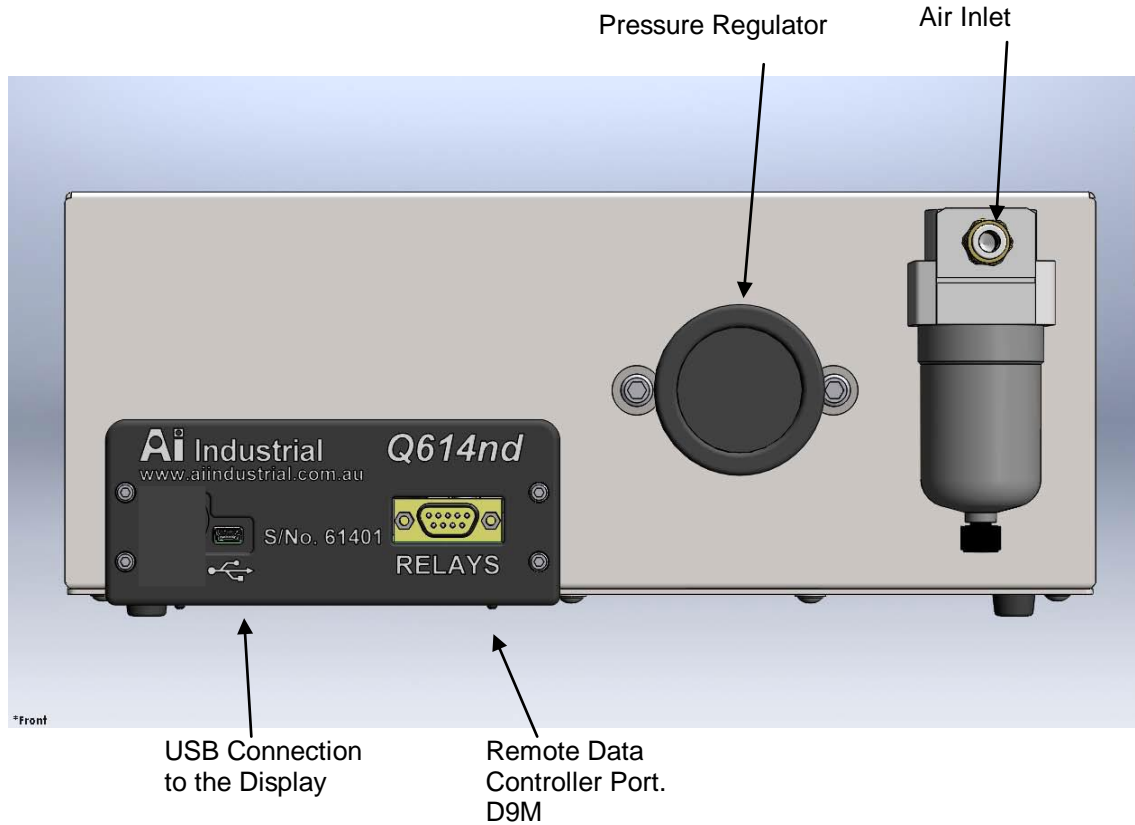


Turn the Q614nd on by pressing the 'On' button and holding it on until it starts.



3.0 Gas Box Panel Layout

This chapter gives a general introduction to the rear panel of the Q614nd. The figure below shows the Gas Box panel layout.



Gas Box Connection Panel Layout

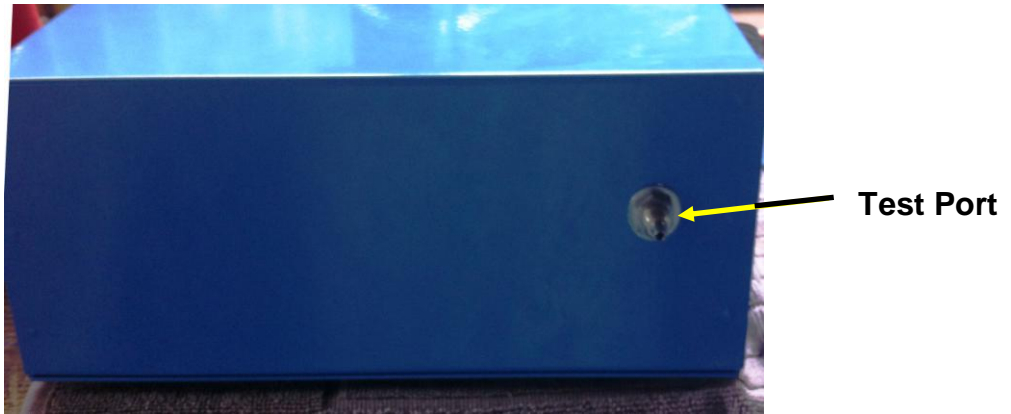
3.1 USB

Connect USB cable to the Gas Box and the Display. This provides power and data.

3.2 Air Inlet Port and Filter

The compressed air supply entering the instrument must be clean and dry, with a minimum pressure of 450 kPa. Connection is via 6mm OD tube.

3.3 Test Port



The component to be tested must be connected to the test port. The components should be tested in a clean and dry state at ambient temperatures. Connection is via 6mm OD tube.

4.0 Programming The Q614nd

This chapter describes how to set up the Q614nd Program and set up parameters using the functions provided.

4.1 Operation Modes

The following modes are available under pass code protection.:

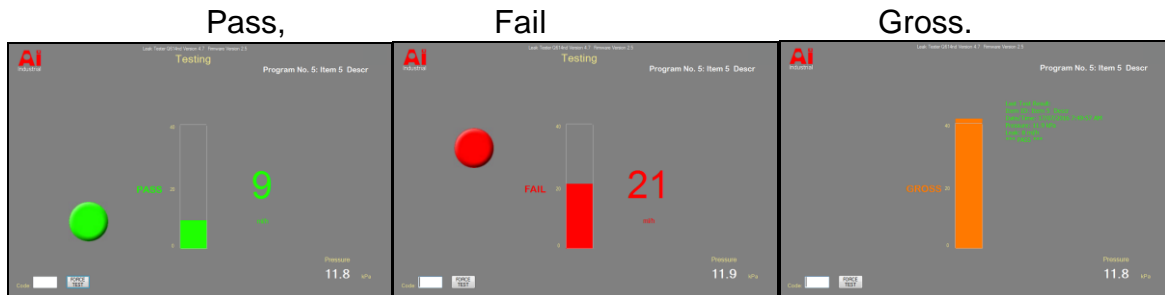
Test Mode

Supervisor Mode

Manager Mode

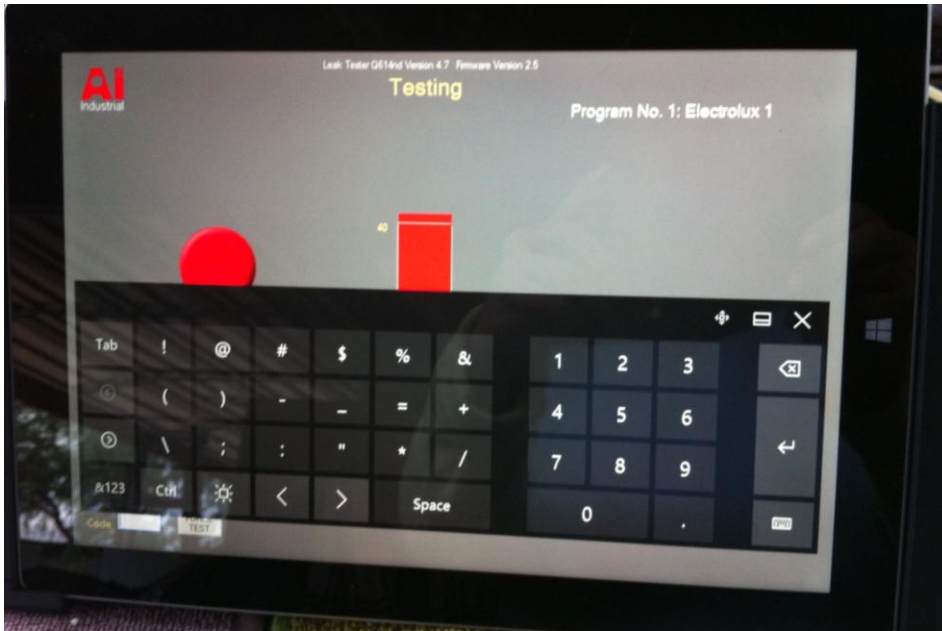
4.2 Test Mode

This is the mode that is used when the line is normally running. The screen does not need any intervention from test to test. Below are the 3 possible displays,



4.3 Supervisor Mode.

There are 10 programs that can be stored in the Q614nd. Accessing the program list is via entering code '123' in the code box after touching it and using the on screen keyboard.



This will bring up the supervisor screen

ProgNo	Pr Low	PrHigh	Fill Time	StabTime	Volume	Pass Level	Item ID	Item Descr
1	0	0	0.1	0.1	0	40	Item 1 Descr	
2	0.2	12	1	1	0	24	Item 2 Descr	
3	2.2	14	3	1	0	20	Item 3 Descr	
4	0	15	2	2	0	40	Item 4 Descr	
5	10	13	1	1.5	0	20	Item 5 Descr	
6	12	15	1	1	0	20	Item 6 Descr	
7	10	15	1	1	0	20	Item 7 Descr	
8	10	15	1	1	0	20	Item 8 Descr	
9	10	15	1	1	0	20	Item 9 Descr	
10	10	15	1	1	0	20	Item 10 Descr	

In this mode the following can be changed:

4.3.1 Pr Low.

This is the test pressure which is the lowest that the system will test. In the circumstance where the pressure goes below this the machine will attempt to refill. If the pressure does not rise it will remain waiting until the pressure rises.

Minimum value 0.

4.3.2 Pr High.

This is the test pressure which is the highest that the system will test. In the circumstance where the pressure goes above this the machine will not test until the pressure falls to be within the high and the low level.

Maximum value 200.

4.3.3 Fill Time.

This is the time the system will fill the test piece before stabilising and testing.

Maximum value 10s in steps of 0.1s.

4.3.4 Stab Time.

This is the time the system will stabilise before testing.

Maximum value 20s in steps of 0.1s.

4.3.5 Volume.

This is the volume of the test piece. As the volume effects the result it is necessary to put in the volume for the result to be accurate. The value should be in *ml*.

Minimum value 0 *ml*.

Maximum value 1000 *ml*.

4.3.6 Pass Level.

This is the level of leakage up to which the green pass indicator is lit after which it will be red, or amber for a gross leak.

Minimum value 1 *ml/h*.

Maximum value 200 *ml/h*.

4.3.7 Item ID.

This is the name of the item which will be shown on the operator screen.

4.3.8 Audible Alert.

When selected a sound will occur when the test is in a fail condition.

Any of the values can be changed in any program by tapping on the screen in the field to be changed. Entering the value from the keypad that is brought up.

Notes

- The value will not be stored until the ENTER button is pressed.
- The program that is required can be selected by tapping on the program line.
- The leak tester is still operating as shown on the right of the screen.

4.4 Manager Mode

Access the Manager mode by entering code '300' in the code box after touching it and using the on screen keyboard. This brings up the screen below.

Leak Tester Q614nd Version 4.7 Firmware Version 2.5

Testing

Program No. 5: Item 5 Descr

ProgNo	Pr Low	PrHigh	Fill Time	StabTime	Volume	Pass Level	Item ID
5	10	13	1	1.5	0	20	Item 5 Descr
1	0	0	0.1	0.1	0	40	Item 1 Descr
2	0.2	12	1	1	0	24	Item 2 Descr
3	2.2	14	3	1	0	20	Item 3 Descr
4	0	15	2	2	0	40	Item 4 Descr
5	10	13	1	1.5	0	20	Item 5 Descr
6	12	15	1	1	0	20	Item 6 Descr

Pressure Unit

- mbar
- kPa
- psi
- inch water

UPDATE PROGRAM DELETE REPORT PRINT CLOSE SETTINGS

LIST PROGRAMS SHOW REPORT CLEAR TEXT Audible Alert SHOW KEYBOARD

Code: FORCE TEST

PASS

Pressure 11.9 kPa

All the values as described in the 4.3 Supervisor mode can be accessed as well as:

4.4.1 Pressure Units

The pressure units can be selected from the list as shown on the screen.

4.4.2 Update Program

In the event of a new software being available to update the program. In this situation the computer needs to be connected to the internet either via WiFi or cable.

4.4.3 Delete Report

A report of the tests can be cleared using this button.

4.4.4 Print Report

The report can be printed via the WiFi connection.

5.0 The Q614nd In Use

This chapter describes powering up and the test cycles of the Q614nd.

As the Q614nd is a continuous leak detector, once it has been initially powered up, no other buttons need to be pressed. The leak detector automatically starts itself when a test piece is connected. It then cycles through its phases and indicates using lamps, whether it passes, fails or there is a gross leak.



If there is no part connected to the test port then the leak detector will show gross leak, and will wait until another part is attached.

NOTE: If at any time the Supervisor requires to reset the machine then pressing the FORCE TEST button will initialise a reset.

6.0 Data Output

The Data Output outputs the leak information in RS232C format and the front panel indicators has relay contacts.

6.1 RS232

There is a 9 pin D9M type connector fitted on the rear of the Leak Testing Machine. The connector is marked, 'Relays'



PIN OUTS

3	Tx
5	0V

Communication Protocol

9600 Baud
1 start bit
8 Data bits
1 stop bit
No parity

6.2 Relay Output

This option provides relay contacts, which provide an output of the front panel indicators PASS, FAIL and GROSS.

The relay contact specification is:

Contact Type:	Dry Reed Form A
Contact Rating:	0.5 A
Contact Voltage:	24 V
Switch Power:	10 W

PIN OUTS 9-PIN Male D Connector

I/O Conn. DB9/M	
1	GND
2	
3	
4	GROSS
5	
6	FAIL
7	PASS
8	COM
9	

Appendix 1 Q614nd Specification

Sensitivity		1 ml/h
Measurement		Flow, ml/h
Linearity		1 %
Cycle Time		1 to 20 seconds
Test Mode		Continuous
Test Pressure		Hi and Low monitoring
Reject Level		1 to 199 ml/h
Pneumatics		
	a: Transducer	Pressure drop across a constriction. Solid state device.
	b: Air input specification	
	Minimum Pressure	400 kPa
	Maximum Pressure	800 kPa
	c. Filter supplied	99.98 %