

Advanced multifunction pressure decay leak detectors

FCO780/FCO790



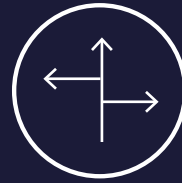
Furness Controls have been innovating in the field of pressure decay leak detection for over 50 years





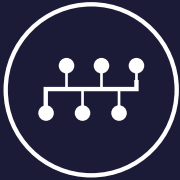
Performance

Rapid test times with globally renowned accuracy levels over a wide range of pressures (from vacuum to 30bar)



Flexible options

Configure up to 300 products using combinations of up to 16 different tests, including pressure decay, blockage, ramp, dump and bell tests



Communications

PC and PLC connections including RS232, RS485, USB, Ethernet, PROFIBUS, PROFINET and EtherNet/IP



Touchscreen

Large colour touchscreen for intuitive device control and display of high resolution graphs



Integration

Integrate in jigs and other machinery with programmable electrical I/O and pneumatic output options. A barcode scanner can select specific product test parameters



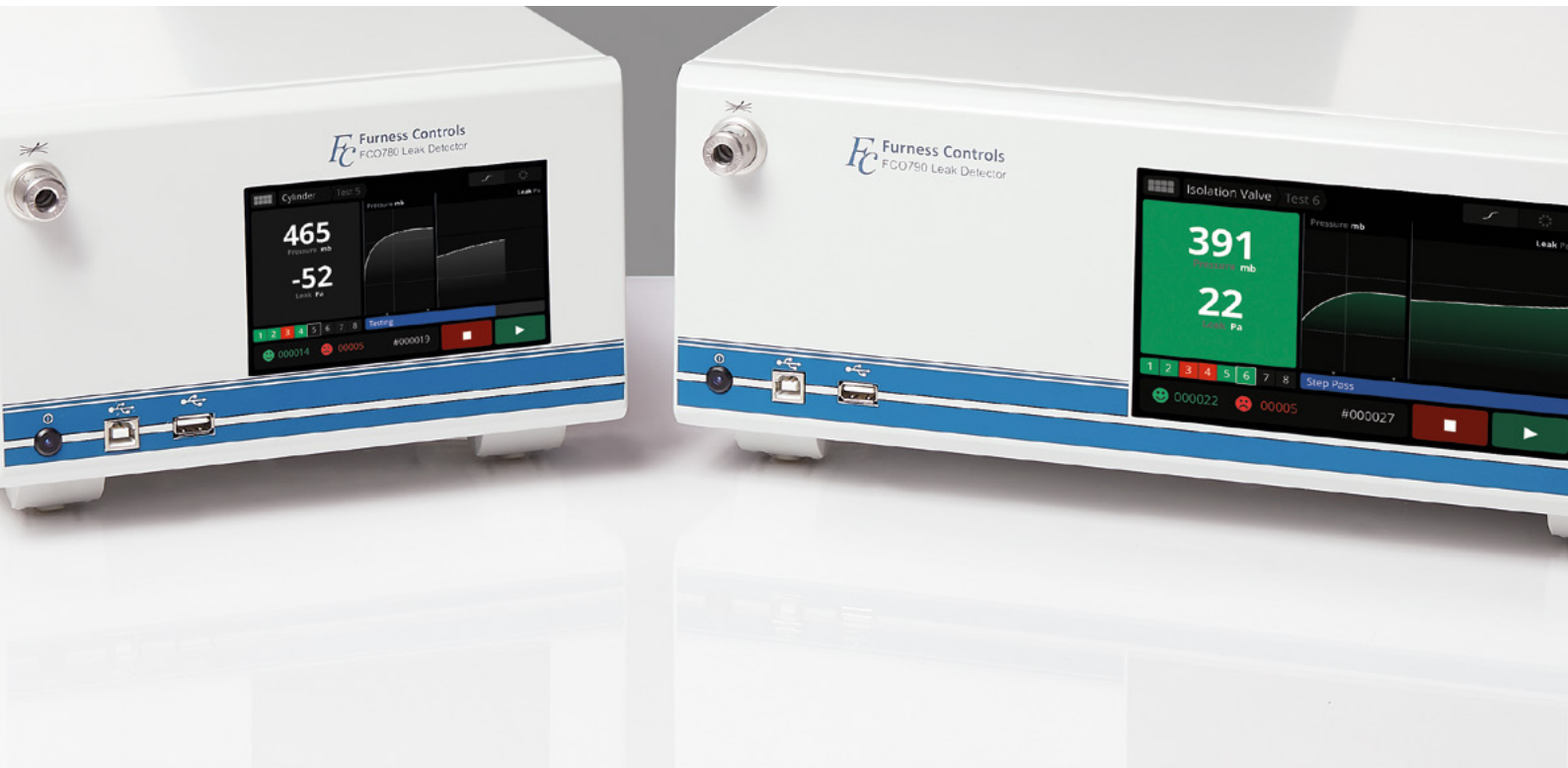
Data logger

Built-in data logger aids traceability by storing not only test results but also the pressure profile for each test, allowing for in-depth analysis of all test results

Across industry, from gas appliances to automotive radiators, medical devices to vacuum cleaners, leak detection is a crucial step in the manufacturing process to verify the integrity of products and enhance consumer safety.

Furness Controls are global leaders in measuring instrument design and manufacture and our expertise means we can identify and implement the ideal test solution for leak, flow, blockage testing and more using our own high-performance sensors.

Furness Controls leak detectors are in use throughout the world, working effectively for years in harsh production environments, providing highly accurate, rapid results with fast test times and highly customisable test types. The FCO780 and FCO790 are the latest in a long line of high specification production line test equipment (building on the highly successful FCO750) which is an integral part of the testing process for manufacturers worldwide.



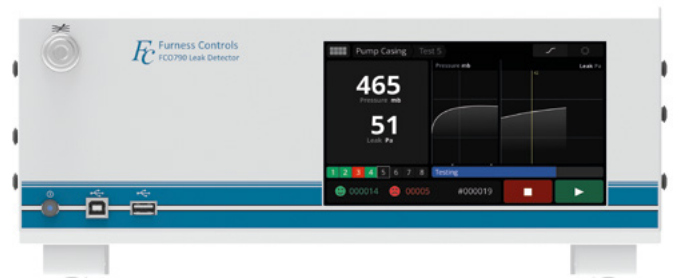
Suitable for use as standalone devices or integrated into larger manufacturing systems, these leak detectors offer a generously-sized touchscreen colour graphical interface to combine great functionality with simplicity of use.

The touchscreen has multiple display modes including live pressure and leak graphs as well as instantaneous readings and operational status. User-defined images can also be included to allow specific visual instructions to be conveyed to the operator during test cycles.

For traceability, each leak detector has a built-in data logger that logs all test results locally. The results can be analysed on the device using the intuitive touchscreen interface, or easily exported to USB for PC-based analysis.

The FCO780 and FCO790 leak detectors offer great flexibility for the consumer, by including a multitude of pressure (from vacuum to 30bar) and leak range options, and a choice of automatic or manual regulators.

They are highly configurable, allowing up to 300 product settings with up to 16 sequence steps and a variety of test types such as leak, blockage, ramp, dump and bell. Programmable inputs and outputs allow the standard settings to be extended or replaced with user defined configurations for flexible jig and PLC interfacing.



Touchscreen interface

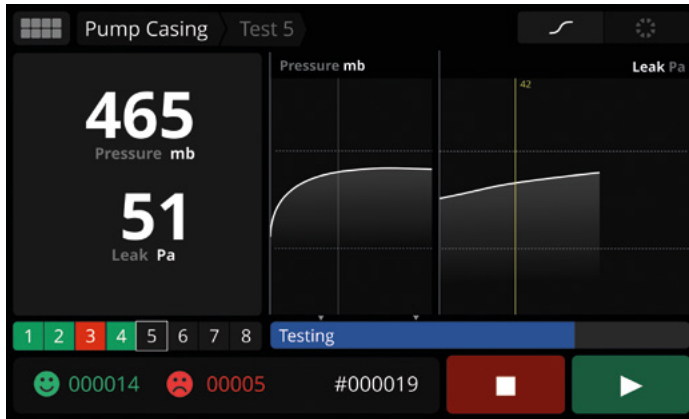
The easy-to-use colour touchscreen display with simple menu navigation is used to programme the instrument and shows the operational status and result values when testing.

The customisable graphical screen images allow the operator to use product images and screen prompts to assist in the test cycle.

Instantaneous graphs of the test cycle can be generated and are stored by the data logger for easy recall or export. Generous screen sizes enhance clarity of graphical output and ensure easy use of the touchscreen.



Clear numerical values, detailed graphing
and easy-touch buttons



Quickly choose between 300 configurable products,
each with up to 16 customisable steps



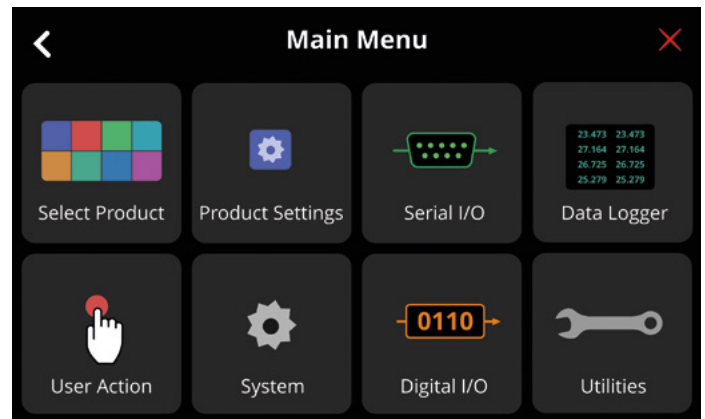
The 'Data Logger' screen shows a table of test logs with the following data:

Time	Instrument ID	Product Id	Product No	Status
2019-02-25 14:45:56	F1801146	Valve 2	2	Success
2019-02-25 14:44:14	F1801146	Cylinder	3	Success
2019-02-25 14:43:06	F1801146	Valve 2	2	Success
2019-02-25 14:40:54	F1801146	Pump Housing	4	Success
2019-02-25 13:23:02	F1801146	Valve 2	2	Success
2019-02-25 13:22:38	F1801146	Valve 2	2	Failure
2019-02-25 13:21:30	F1801146	Valve 2	2	Success
2019-02-25 13:20:14	F1801146	Valve 2	2	Success
2019-02-25 13:19:10	F1801146	Valve 2	2	Success

At the bottom, there are filters for 'All Products', a date range of '8 Feb - 25 Feb', a status filter, and a page indicator 'Page 1/25'.



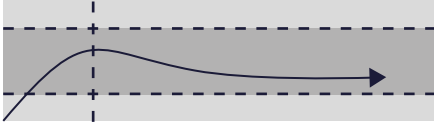
Data logger function allows you to browse
and export all of the data from your last
1,000,000 product tests



Change settings and configure tests
quickly and easily with the intuitive
icon-based menu system

A world of testing possibilities

Pressure decay leak test

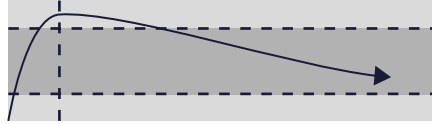


Checks that components do not leak more than an acceptable level. The test item is pressurised before being isolated from the pressure source and allowed to stabilise. Once stabilised, a leak is indicated by a decrease in pressure over time.



Testing for valves, automotive casings, sprays and more...

Blockage test

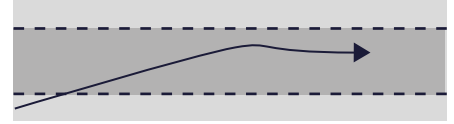


Checks that components are not blocked more than the specified level and do not have too great a leak. The test item is pressurised before being isolated from the pressure source. The level of flow is determined by checking the test pressure after a preset time.



Testing for breather systems, inhalers, nozzles & regulators and more...

Ramp test



The pressure at which a device actuates is measured by generating a pressure ramp (rising or falling). At the point of actuation, the volume in the test item starts to increase which causes a change in the rate of the pressure ramp. The ramp test detects this change and checks the pressure against upper and lower limits. The ramp test is useful for items such as pneumatic cylinders, pneumatic valves, pressure switches and pressure relief valves.



Testing for hydraulic & pneumatic actuators, pressure release systems for batteries and more...

Dump test

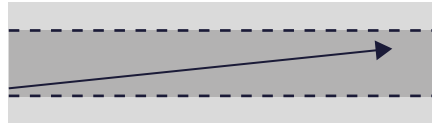


A variation of the pressure decay leak test for use with sealed items, the dump test involves placing the test piece in a chamber. A reference volume at a set pressure is connected to the test chamber and the resulting stabilised pressure is checked to detect leaks in the item.



Testing for sealed medical items, waterproof devices and more...

Bell leak test



A bell chamber is used to enclose the test item, which is then continuously pressurised during the test cycle from a separate pressure source. If the test item leaks, the air will be captured within the bell and the pressure in it will increase. This method can achieve very high test pressures of up to 400 bar.



Testing for pressurised sealed items, high pressure valves and more...

Test runs can be linked in any combination into sequences of up to **16 steps**. In this way, a test item can be evaluated in many different ways using different tests, and time delays between tests can be inserted.

Input/output steps can be incorporated between tests to allow feedback to inform the test cycle, such as actuating electrical or pneumatic features of a test component and checking correct actuation via sensors.

Connectivity & hardware

The programmable I/O facility of our devices can remove the requirement for a PLC, reducing test station cost and complexity. Both instruments provide a range of options for electrical I/O and pneumatic outputs, offering a perfect platform for a cost-effective test station.

The FCO780 has 12 electrical control inputs, 16 electrical control outputs and 2 pneumatic outputs. The FCO790 has 24 electrical control inputs, 32 electrical control outputs, and 5 pneumatic outputs.

All electrical and pneumatic outputs may be user-programmed according to the application. Pneumatic outputs included as standard are the jig pilot, which provides pilot air to control jig clamps, and the vent pilot, which provides pilot air for an external vent or exhaust valve. The electrical inputs are configurable for many functions. The first four inputs default to the basic remote-control functions: start, reset, vent sensor and jig sensor, but may be reprogrammed as required.

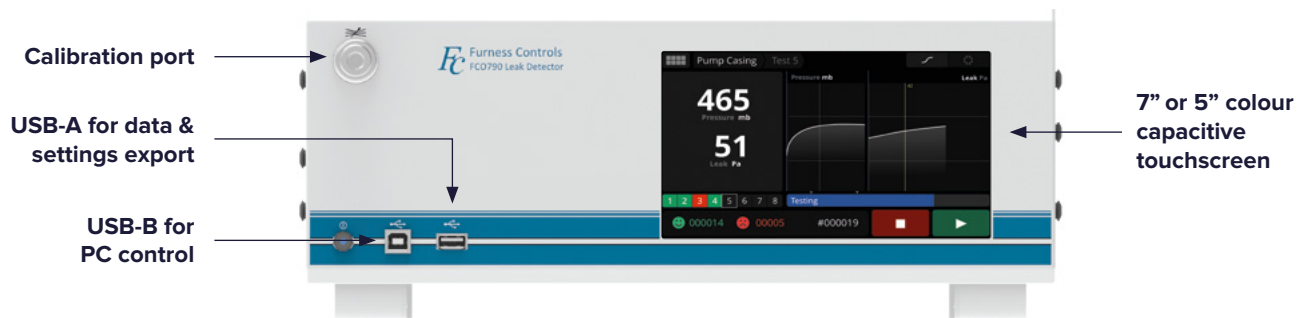
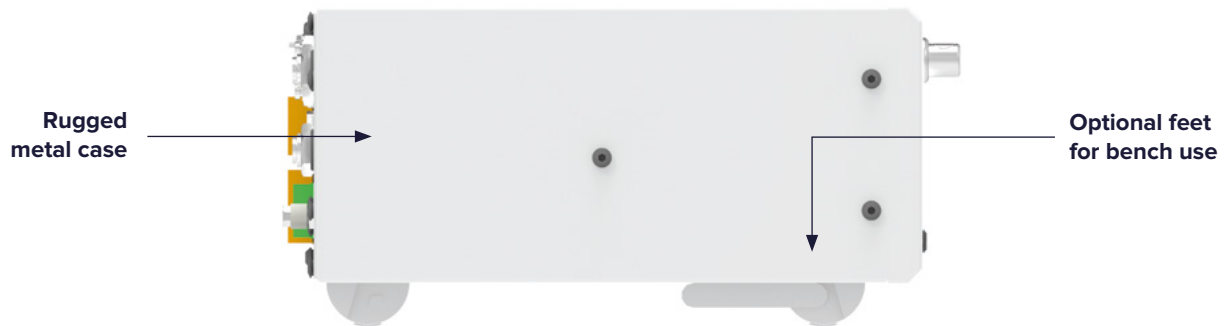
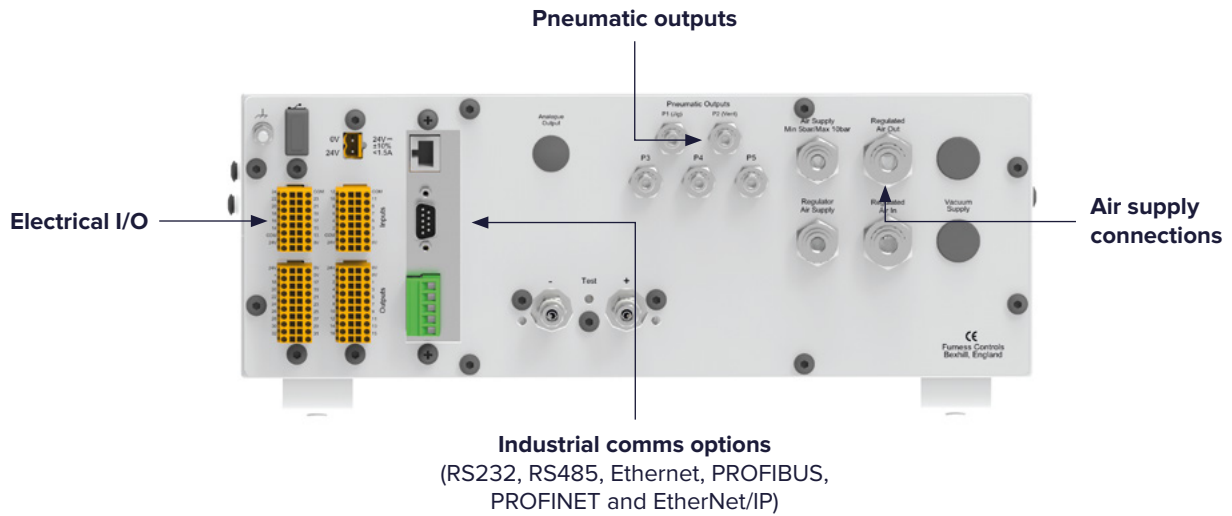
The FCO780 and FCO790 leak detectors offer a wide range of industrial communication modes including PROFIBUS, PROFINET and EtherNet/IP, for full control from a PLC. Other communication

methods such as RS232, RS485, USB and Ethernet are also available as standard, and may be used for control, configuration and data logging.

Hardware

FCO780 and FCO790 detectors are housed in a robust steel bench-top case with two extending front feet that allow the case to be tilted so that the front panel can be seen easily. Case extensions are available to allow rack mounting.





Leak Measurement

Leak ranges	± 200.0 Pa ± 2.000 kPa ± 20.00 kPa
Accuracy @ 20°C	10 % to 100 % range: < ± (1 % reading + 1 digit) 0 to 10 % range: < ± (0.1 % range + 1 digit)
Resolution	4 digit display
Temperature Coefficients	Zero: Automatic Span: < ± 0.15 % per °C
Long Term Drift (span)	< ± 1 % per year

Pressure Measurement

Pressure Ranges	± 99.99 mbar ± 200.0 mbar ± 999.9 mbar	-1 bar to +4.000 bar -1 bar to +8.000 bar -1 bar to +9.999 bar	-1 bar to +14.00 bar -1 bar to +30.00 bar
Accuracy @ 20°C	10 % to 100 % range: < ± (1 % reading + 1 digit) 0 to 10 % range: < ± (0.1 % range + 1 digit)		
Resolution	4 digit display		
Temperature Coefficients	Zero: Automatic Span: < ± 0.15 % per °C		
Long Term Drift (span)	< ± 1 % per year		

Electrical

	FCO780	FCO790
Electrical connections	Power: 2 way detachable terminal Outputs: 20 way detachable terminal Inputs: 16 way detachable terminal RS232: 9 pin D plug RS485: 5 pin detachable terminal LAN: RJ45 connector, 10base-T / 100base-TX Ethernet USB: 1 x USB Type A connector, 1 x USB Type B connector	
Control Inputs	12 Opto-isolated, active high or active low. 5 Vdc to 24 Vdc into 10 kΩ	Up to 24 Opto-isolated, active high or active low. 5 Vdc to 24 Vdc into 10 kΩ
Control Outputs	16 Active High transistor output (PNP). 12 Vdc to 45 Vdc, 120mA (per channel)	Up to 32 Active High transistor output (PNP). 12 Vdc to 45 Vdc, 120 mA (per channel)

Pneumatic

	FCO780	FCO790
Media Compatibility	Clean dry air or non-corrosive gas	
Air Supply Pressure	Maximum 10 bar gauge, Minimum 5 bar gauge	
Regulator Supply Pressure	Maximum 16 bar gauge or 35 bar for 30 bar option	
Pneumatic Connections	Up to 2 programmable pneumatic outputs:	Up to 5 programmable pneumatic outputs
	Air supply: 6 mm push-in tube connector Regulator supply and output: 8 mm push-in tube connector Test/Reference: 1/8" BSPF 4 mm push-in tube connectors	
Leak Tightness	< 0.2 ml/hour	

Construction

	FCO780	FCO790
Enclosure	Steel construction enclosure with paint finish. Suitable for 19" 3U rack mounting.	
Dimensions – Rack Case	267 x 133 x 296 mm (W x H x D)	482 x 133 x 296 mm (W x H x D)
Dimensions – Bench Case	232 x 147 x 296 mm (W x H x D)	366 x 147 x 296 mm (W x H x D)
Weight	5 kg ± 0.5 kg	9 kg ± 0.5 kg

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