DPI 611 Hand-held Pressure Calibrator

Mike Shelton
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Imagination at work.

Your touch, our technology

TWICE the performance, HALF the size

The DPI 611 is the latest addition to the GE range of pressure, electrical and temperature calibrators and replaces the DPI 610 PC and 615 PC models

"Everything you wished for in a portable pressure calibrator"

- **Fast, intuitive, dependable performance**

- **The first dedicated pressure calibrator with swipe screen technology**

- **A comprehensive pressure maintenance tool that integrates with software**

The DPI 600 series, first introduced in 1984

The DPI 600 series has been the industry benchmark for 30 years

Today the DPI 610 is the industry standard simply referred to as the "Druck"

The new DPI 611 builds on this legacy

The DPI 611 "Druck" pressure calibrator

When the pressure's on – there's a smarter way to work

What makes the DPI 611 a "Druck"

"The DPI 600 series has been the market leading pressure calibrator for over 30 years and even today it holds the top position in a growing market. We are building on this experience, applying rigorous design processes and investing in first class production facilities to ensure continued success"
Mike Shelton – Product Manager

What makes the DPI 611 a "Druck"

- The DPI 611 integrates high accuracy pressure measurement, reliable pressure generation, signal measurement and power supplies

- With all this in a rugged enclosure, it's all you need to maintain and calibrate pressure instrumentation

- The GE Pressure business is the centre of excellence for the design and manufacture of high accuracy pressure sensors, measurement and digital electronics, ergonomic enclosures and precision mechanical pressure systems

- We have total control over design, development and manufacturing and we are a UKAS accredited facility. Quality and performance is guaranteed

What makes the DPI 611 better than a DPI 610

- **50% smaller and 33% lighter**

- **Generates 0 to 20 bar in less than 30 seconds**

- **Creates 95% vacuum**

- **Pressure measurement is twice as accurate**

- **Three times better electrical accuracy**

- **Simplified touch screen interface with application DASHBOARD, quick TASK selection and FAVOURITES storage**

- **Fast, three touch set-up for any application**

- **Calculates PASS/FAIL errors, documents results and interfaces with Calibration Software**

Performance is a function of precision engineering
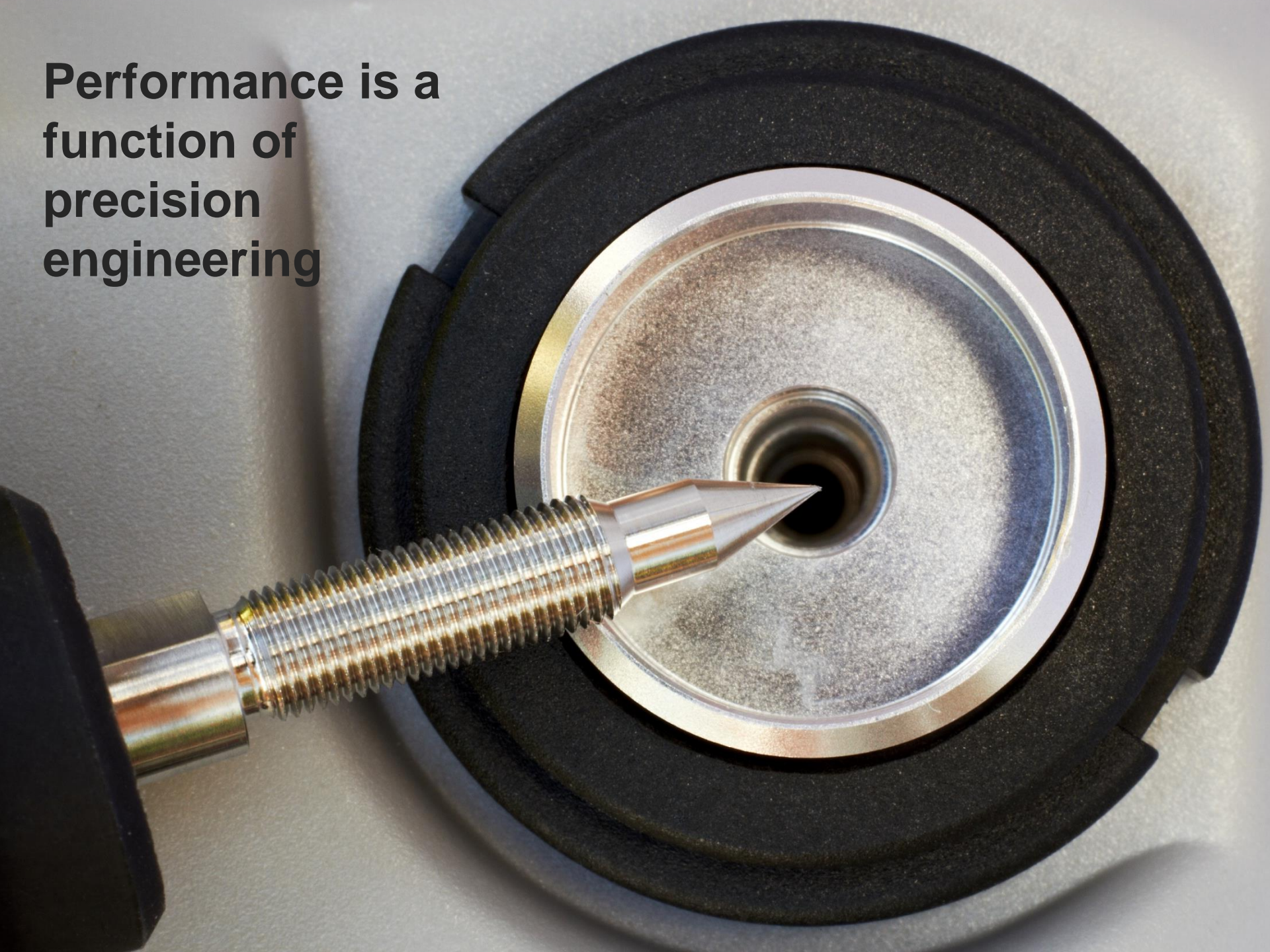
How does the DPI 611 achieve it's performance

"Performance is a function of precision engineering in mechanical systems, electronic designs and silicon processing. This is how we deliver great value to our customers." *Mike Shelton – Product Manager.*

- The innovative design uses carefully selected materials with high tolerance machining and perfect finishes

- Advanced materials combined with precision moulding, ensure the DPI 611 is both rugged and weatherproof

- State of the art microelectronics contribute accuracy and the processing power to enable a unique simple to use interface

DPI 611 Pressure generation
0 to 20 in 30 seconds

- Generates from 95% vacuum to 20 bar/300 psi pneumatic pressure

- Built-in volume adjuster for fine adjustment

- Precision vent valve for falling calibration points

- Built-in overpressure protection

DPI 611 Pressure generation
Generate 20 bar in your hand

- Improved performance allows you to generate 20 bar/300psi while holding the instrument in one hand

- It takes just 30 seconds to generate maximum pressure, even with a one meter hose connecting the device.

- Ergonomic design provides a firm grip for hand-held use and prevents the instrument from sliding when on a test bench

- A proven mechanical design provides a simple-to-use, dependable system

DPI 611 Pressure measurement
Twice as Accurate

- The digitally corrected "Druck" pressure sensor uses advanced silicon technology

- More than twice as accurate as the DPI 610

- Total uncertainty gives complete confidence between annual calibrations

DPI 611 Electrical capability
Three times better accuracy

The DPI 611 retains the comprehensive electrical measurement and sourcing capability of the DPI 610 series

	P_1	P_2 IDOS	mA	V	mV	10Vdc	24V	Switch
Measure	✓	✓	✓	✓	✓			✓
Source	✓		✓			✓	✓	

- Three times better accuracy

- Simplified electrical connections

DPI 611 Hand-held pressure calibrator
50% smaller and 33% lighter

The DPI 611 is truly a hand-held pressure calibrator being 50% smaller and 33% lighter than the DPI 610

- The more efficient and higher performance pressure system is smaller and lighter

- State-of-the art microelectronics require less power from smaller batteries

- A larger touch display provides clear viewing and more information

DPI 611 Quick-to-fit pressure adaptor system
Significantly reduces set-up time

Making a leak-tight pressure connection in the field is inevitably frustrating. The DPI 611 comes with a quick-to-fit adaptor system

- No tools or sealing required and connections are leak free

- Damaged adaptors are very simply replaced and there's no repair downtime

- The DPI 611 system is proven to significantly reduce set-up time

DPI 611 With simplified touch screen

As easy as 1, 2, 3

The DPI 611 uses the same interface design as the unique and award winning DPI 620 Genii

- The DASHBOARD allows quick application selection

- The TASK menu provides a library of popular configurations

- A FAVOURITES menu for even quicker access to regularly used and customised TASKS

- The touch screen is quicker and simpler to use than complex keypads with special function keys

- Application connection diagrams can be viewed on screen
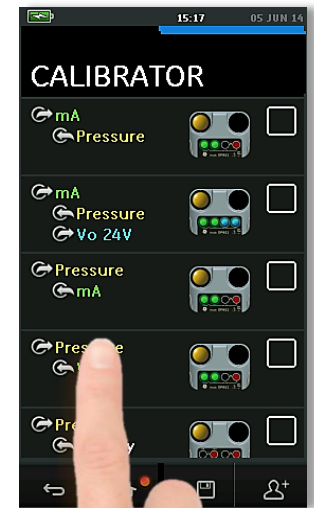
Setting up for a job

1) Swipe from right to left

2) Touch to make a selection
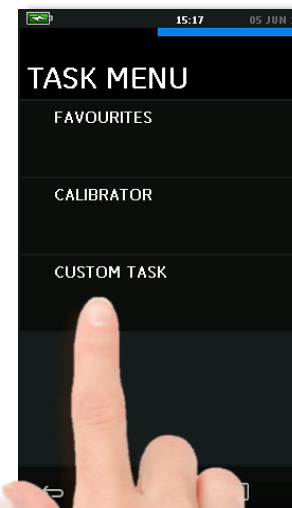
3) Touch to select the TASK

DPI 611 With full documenting capability

Calculates PASS/FAIL errors, documents results, interfaces with calibration software

The DPI 611 is a simple to use "everyday" tool for maintaining and calibrating pressure instruments. It also has the advanced features of the DPI 620 Genii for automating calibration procedures, calculating errors and interfacing with calibration and maintenance systems.

- Automated calibration procedures
- PASS/FAIL error analysis
- Multi-channel data logging
- Connectivity with leading calibration and maintenance software including 4Sight from GE

DPI 611 With calibration and maintenance software

4Sight is the new state-of-the-art, integrated, web-based Software as a Service (SaaS) calibration manager

- **Maintains compliance with industry standards**

- **Provides a full-time and date stamped audit trail**

- **Significantly reduces your operating costs**

- **Provides automated paperless solutions**

- **Ensures that you are always ready for an audit**

- **Optional web hosting means no IT overhead**

4Sight

- **Software**

- **Mobile Solutions**

- **Workshop Solutions**

- **Global services**

DPI 611 External features

Quick fit pressure adaptors system (no tools required)

Electrical connections for measuring mA, mV, V and detecting switch contacts.

Full colour touch screen display

On / Off / sleep

Padded leather hand strap (attaches to left or right side)

Volume adjuster for precise pressure setting

Anti slip feet (front and rear)

Pressure vent valve (precision needle valve for fine control)

10V DC regulated supply and 24V loop power

USB master and slave sockets with protective cover

Hand strap attachment

Pressure / Vacuum selection

Hand pump

DPI 611 Advanced features

Step and ramp mA output:
Simply configured for simulating transmitter outputs into control loops, testing valve positioners and checking safety systems

- **% Step:** For example, 25% provides 5 test points of 4, 8, 12, 16 and 20 mA.
- **Defined Step:** The step size is defined as a value in mA.
- **Span Check:** For example, 4 and 20 mA for checking zero and FS.
- **Ramp:** Perfect for dynamically testing switches.
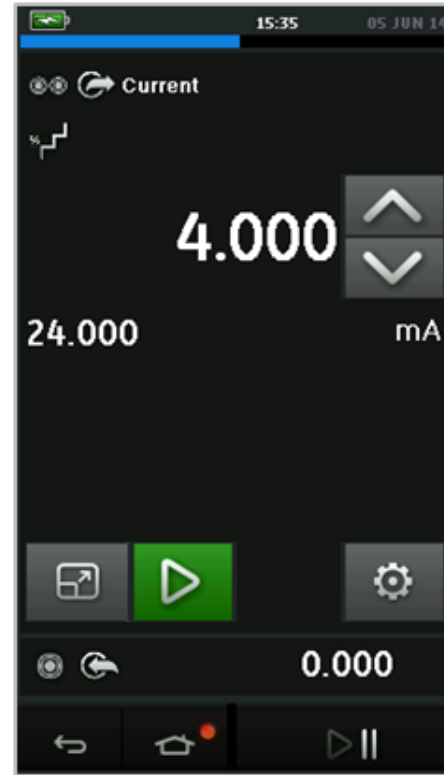
DPI 611 Advanced features

Nudge: Simply use the up/down keys to determin trip values

Switch test: Automates switch testing

Pressure leak test: Detects leaks and determines leak rates

DPI 611 Advanced features

Max/Min: Captures maximum and minimum values and calculates the mean

Relief valve: Captures the venting pressure of a relief valve

Scaling: For example, mA expressed as % of the process variable

Resolution: Match the display resolution to that of the test device

Help: View wiring connection diagrams and the user manual on-screen

mA−

V

mA+

mA 24V

Vo

Druck DPI611

30V MAX

Calibrate, Communicate, Integrate

The new DPI 611 pressure calibrator

- Replaces DPI 610/615 PC (phased out by end 2014)
- The DPI 611 will be available in the following ranges
    +/-1barg (-14.5 to 15 psig)
    -1 to 2 barg (-14.5 to 30 psig)
    -1 to 7 barg (-14.5 to 100 psig)
    -1 to 10 barg (-14.5 to 150 psig)
    -1 to 20 barg (-14.5 to 300 psig)

- Further models will be introduced later in the year to provide more pressure ranges (including absolute ranges) and to replace the DPI 610/615 LP and HC versions
- The intrinsically safe versions of the DPI 610 and 615 will be available for the foreseeable future. A DPI 611 IS design product will start later this year

DPI 611 Pressure specification

Gauge ranges (referenced to atmosphere)				
Pressure range		Accuracy[1]	Total uncertainty 10° to 30°C (50° to 86°F) for 1 year	Overpressure protection[2]
bar	psi	%FS	%FS	%FS
-1 to 1	-14.5 to 15	0.0185	0.025	150
-1 to 2	-14.5 to 30	0.0185	0.025	150
-1 to 7	-14.5 to 100	0.0185	0.025	150
-1 to 10	-14.5 to 150	0.0185	0.025	150
-1 to 20	-14.5 to 300	0.0185	0.025	150

Note 1 Accuracy defined as NLHR (same definition as the DPI 610)
Note 2 An internally fitted pressure relief valve vents at 150% FS

Pressure media
Most gases compatible with aluminium, brass, stainless steel, nitrile and polyurethane seals, PTFE, acetal, nylon.

Pressure connection
Tool-less quick-fit connection. Supplied with G1/8 female and 1/8 NPT female adaptors. Other adaptors available – see accessories.

External pressure modules
IDOS (intelligent digital output sensor) pressure modules can be connected via a USB converter P/N IO620-USB-IDOS to extend the measuring range of the instrument. Please refer to the IDOS UPM datasheet.

Multiple parameter display capability
The display can be configured to show a maximum of four simultaneous reading windows as follows: pressure, electrical measurement, electrical source, IDOS external pressure module.

DPI 611 Electrical specification

Electrical measurement and source					
	Total uncertainty 10°C to 30°C (50° to 86°F) for 1 year		Additional error -10°C to 10°C & 30°C to 50°C (-10°C to 10°F & 30°C to 50°F)		Resolution
	%Rdg + %FS		%Rdg/°C + %FS/°C		
Measure mode					
DC Voltage					
+/- 200 mV	0.015	0.01	0	0.0005	0.001
+/- 2000 mV	0.015	0.01	0	0.0005	0.01
+/- 20 V	0.015	0.01	0	0.0005	0.00001
+/- 30 V	0.015	0.01	0	0.0005	0.0001
Current					
+/- 20 mA	0.015	0.01	0	0.0005	0.0001
+/- 55 mA	0.018	0.01	0	0.0005	0.0001
Source mode					
DC Voltage					
10V (Fixed, 25mA max.)	0	0.1	0	0	0.001
24V (Fixed, 25mA max.)	0	1.0	0	0	0.001
Current					
0 to 24 mA	0.018	0.01	0	0.0005	0.001
0 to 24 mA (loop power)	0.018	0.01	0	0.0005	0.001

DPI 611 General specifications

General specifications	
Display	Size: 110 mm (4.3in) diagonal. 480 x 272 pixels. LCD colour display with touch screen
Languages	English (default), Chinese, Dutch, French, German, Italian, Japanese, Korean, Portuguese, Russian, Spanish
Operating temperature	-10° to 50°C (14° to 122°F). 0° to 40°C (32° to 104°F) when powered from optional mains adaptor IO620-PSU
Storage temperature	-20° to 70°C (-4° to 158°F)
Ingress protection	IP 54. Protected against dust and splashing water from any direction
Humidity	0 tp 90% RH none condencing. To Def Stan 66-31, 8.6 cat III
Shock / vibration	BS EN 61010-1:2010 / MIL-PRF-28800F CLASS 2
Altitude	Up to 2000m
EMC	BS EN 61326-1:2013
Electrical safety	BS EN 61010-1:2010
Pressure safety	Pressure Equipment Directive - Class: Sound Engineering Practice (SEP)
Enclosure materials	Polycarbonate, polyamide, polypropylene, acrylic, cotton
Approved	CE marked
Size (L:W:H)	270 x 130 x 120mm (10.6 x 5.1 x 4.7 in)
Weight	1.96Kg (4.3lb) including batteries
Power supply	8 x AA alkaline batteries Optional mains adaptor P/N IO620-PSU 100 – 260V +/- 10%, 50 / 60Hz AC, Output DC V=5A, 1.6A
Battery life	18 to 26 hours depending on functions
Connectivity	USB type A, USB type mini B

Accessories

The DPI 611 has the same quick-fit pressure connection system as the DPI 620 Genii and is therefore compatible with the following accessories

- IO620–IDT621 Dirt moisture trap
- IO620-HOSE-P1 or P2. 1 metre and 2 metre hoses
- IO620-BSP pressure fitting adaptor set
- IO620-NPT pressure fitting adaptor set
- IO620-MET pressure fitting adaptor set
- IO620-COMP Comparator adaptor
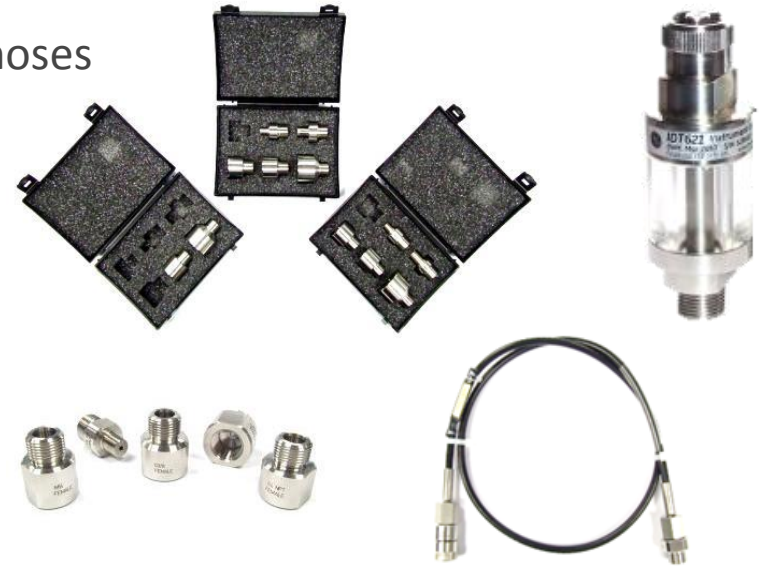
The DPI 611 has the same electrical accessories

- IO620-PSU Mains adaptor
- IO620-USB-PC USB cable to connect to a PC
- IO620-IDOS-USB For connecting IDOS sensors
- IO620-USB-RS232 Coverts DPI 611 USB to RS232