Instruction Manual

Pirani 501

Description	Item Number
Pirani 501 mbar (230 V)	D395-01-000
Pirani 501 torr (115 V USA supply connector)	D395-11-000

Official Distributor in Australia

EZZI VISION

Vacuum and Thin Film Technology

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Why Choose Ezzi Vision?

'Partner with excellence in Vacuum Technology, opt for Ezzi Vision'

Decades of Expertise: With 30+ years in the industry, Ezzi Vision is highly experienced in vacuum technology and its applications.

Quality Assurance: We ensure that every Edwards pump meets the highest standards of performance and reliability.

Innovative Solutions: Leading in technological advancements, we provide the latest Edwards pumps, known for their innovation and efficiency.

Customer-Centric: Ezzi Vision delivers personalized service and expert advice to meet your needs.

Nationwide: Ezzi Vision brings quality vacuum solutions to all of Australia.

After-Sales Support: We provide comprehensive support to maintain your equipment's longevity and efficiency.

Sustainable Practices: Our products at Ezzi Vision align with contemporary environmental standards, promoting sustainable practices in your business operations.

With Ezzi Vision propel your business forward using state-of-the-art technology and steadfast support.

Declaration of Conformity

We, Edwards Limited,
Crawley Business Quarter,
Manor Royal
Crawley,
West Sussex, RH10 9LW, UK

declare under our sole responsibility, as manufacturer and person within the EU authorised to assemble the technical file, that the product(s)

Pirani 501 mbar 240 V	D395-01-000
Pirani 501 Torr 110 V	D395-11-000
PRE10K	D024-28-000
Extension Lead 5 m	D368-36-005
Extension Lead 15 m	D386-36-015
Extension Lead 30 m	D368-36-030

to which this declaration relates is in conformity with the following standard(s) or other normative document(s)

EN61010-1: 2010	Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use. General Requirements
EN61326-2-3: 2013 (Class B Emissions, Basic Immunity)	Electrical equipment for measurement, control and laboratory Use. EMC requirements. Particular requirements. Test configuration, operational conditions and performance criteria for transducers with integrated or remote signal conditioning

and fulfils all the relevant provisions of

2014/35/EU	Low Voltage Directive
2014/30/EU	Electromagnetic Compatibility (EMC) Directive
2012/19/EU	Waste from Electrical and Electronic Equipment (WEEE) Directive

Note: This declaration covers all product serial numbers from the date this Declaration was signed onwards.

L G Marini

Larry Marini, Senior Technical Manager

16.07.2015, Eastbourne

Date and Place

This product has been manufactured under a quality management system certified to ISO 9001:2008

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For return of equipment, complete the HS Forms at the end of this manual.

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1 Introduction

1.1 Scope of this manual

This manual provides installation, operation and routine maintenance instructions for the Edwards Pirani 501. Read this manual before attempting to install and operate the unit.

This manual contains essential safety information which supplements the safety features of the unit. Safety procedures are highlighted as WARNING and CAUTION instructions. You must obey these instructions. The use of WARNINGS and CAUTIONS is defined below.

WARNING

Warnings are given when failure to observe the instruction could result in injury or death to persons.

CAUTION

Cautions are given where failure to observe the instruction could result in damage to the equipment, associated equipment and process.

The following symbols appear on the Pirani 501:

A.C. Supply

Warning - refer to accompanying documentation.

Warning - risk of electric shock.

From August 2005, Edwards will offer European customers a recycling service.

1.2 General

The Pirani 501 is for use with the Edwards Pirani PRE10K gauge head. It has a wide easy to read analogue meter scale with continuous pressure reading from 10^{-3} to 5 mbar (or torr). Range switching is therefore not necessary.

A recorder output is provided on the rear panel of the Pirani 501 giving an output of 0 to 100 mV. A graph of voltage/ pressure is provided in Section 5 of these instructions.

The unit may be left free standing on the folding legs supplied or panel mounted with a mounting kit also supplied.

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2 Technical data

2.1 Operating conditions

Temperature range (operating)	0 to 50 °C
Temperature range (storage)	-10 °C to +70 °C
Relative humidity	10 - 90 %
Maximum operating altitude	2000 m

2.2 Performance

Pressure measuring range (mbar or torr)	10^{-3} to 5
Recorder output	0 - 100 mV
Output impedance	100 Ω
(negative output connected to electrical safety ground)	
Minimum load resistance	10 kΩ
(continuous output)	

2.3 Mechanical data

Fixing hole dimensions mm (panel mounting)	92 (+ 0.8) x 92 (+0.8)
Dimensions mm (w x h x d)	96 x 96 x 155 (DIN 43700)
Meter scale (analog)	230 ° display wide angle
Mounting	Bench or panel (removable tilting feet and panel clamp supplied)
Weight	650 g

2.4 Electrical data

2.4.1 Electrical supply data

Operating voltages	115 V or 230 V + 10 % - 20 %
	(Selected by fuse position)
Operating frequency	50/60 Hz
Fuse 230 V	63 mA (F)
Fuse 115 V	100 mA (F)
Power consumption	2 W
Power switching	On when power supply applied

2.4.2 Indicators

LED (Light Emitting Diode) indication	Green LED for power on

2.4.3 Rear panel connections

Recorder output	1 x 3.5 mm DIN monojack socket
Gauge connector socket	1 x 5 pin DIN 180 °
Gauge type	Edwards Pirani PRE10K
Power lead length	2 m

3 Installation

CAUTION

Ensure that the instrument is set for the correct voltage before connecting to the electrical supply.

3.1 Unpacking and inspection

Remove all packing materials and protective covers and check the instrument for damage. If the instrument is damaged, notify your supplier and the carrier in writing within three days; state the Item Number of the unit together with your order number and your supplier's invoice number. Retain all packing materials for inspection. Do not use the instrument.

Check that your package contains the following items:

Qty	Description	Check
1	Controller	
1	Mains lead (240 V or 115 V)	
1	Chart recorder jack plug 3.5 mm	
2	Mounting brackets	
1	Mains fuse: 100 mA supplied with D395-01-000 OR 63 mA supplied with D395-11-000	
1	Electrical supply lead	
2	Foot tilting	
2	Buffer 19 mm (self adhesive)	
2	Screw M3 x 8 (self tapping)	
2	Screw M3 x 40	

If any of these items are missing, notify your supplier in writing within 3 days.

3.2 Panel mounting and free standing

The unit may be mounted into a fixing hole in a panel if required. The dimensions for a fixing hole are given in Section 2.3. Slide the unit into the fixing hole in the front of the panel, then clip on the two mounting brackets and screw the two M3 x 40 retaining screws through the clamps until the unit is held against the panel.

Alternatively, screw the tilting feet to the front underside of the unit using the self tapping screws provided for a free standing unit. Two self-adhesive buffers are also provided to ensure better surface grip.

3.3 Operating voltage

WARNING

High voltages exist within the unit. Switch off electrical supply before removing covers. Covers should not be removed except by a qualified service engineer.

3.3.1 Pirani 501

The operating voltage on this instrument is changed by reversing the fuse holder. A small arrow on the mains inlet connector points to the required voltage setting. When changing the input voltage, the input fuse must also be changed, 100 mA for 115 V operation and 63 mA for 230 V operation. Pull out the holder marked  beneath the input plug connection and check the fuse furthest into the holder. Change if necessary.

3.4 Power connections

Instruments ordered to read mbar (D395-01-000) will be set for 230 V operation and will require a 3-pin electrical supply connector to be connected. Connect the three cored lead as follows:

BROWN lead to LIVE (L)

BLUE lead to the NEUTRAL (N)

GREEN/YELLOW lead to EARTH (E)

Instruments ordered to read torr (D395-11-000) will be set for 115 V operation and will have been provided with a moulded plug.

The wire colour coding is as follows:

BLACK - LIVE

WHITE - NEUTRAL

GREEN - EARTH

3.5 Gauge head connections

CAUTION

Do not connect or disconnect a gauge head with the power on. Damage to the gauge head may result if this caution is ignored.

Connect the PRE10K gauge head to the vacuum system as detailed in the instructions supplied with the head.

Connect the extension cable, if ordered, to the gauge head lead socket and plug the lead into the instrument rear panel socket (5 pin DIN).

3.6 Recorder output

The recorder output socket is on the rear panel of the instrument, marked REC.

The recorder output provides a pressure/voltage output of 0 to 100 mV according to Figure 1 and 2.

A 3.5 mm DIN mono jack plug is supplied for the recorder output. Connection is earth (ground) to the outer cable and the signal path (negative) to the centre pin.

4 Operation

4.1 Power on

Power to the Pirani 501 is on when the electrical supply is connected and switched on.

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5 Maintenance

The Pirani 501 requires no routine maintenance.

5.1 Calibration

For calibration of gauge heads refer to the working instructions for the PRE10K (D024-28-880).

Figure 1 - Pirani 501 recorder output graph (mbar)

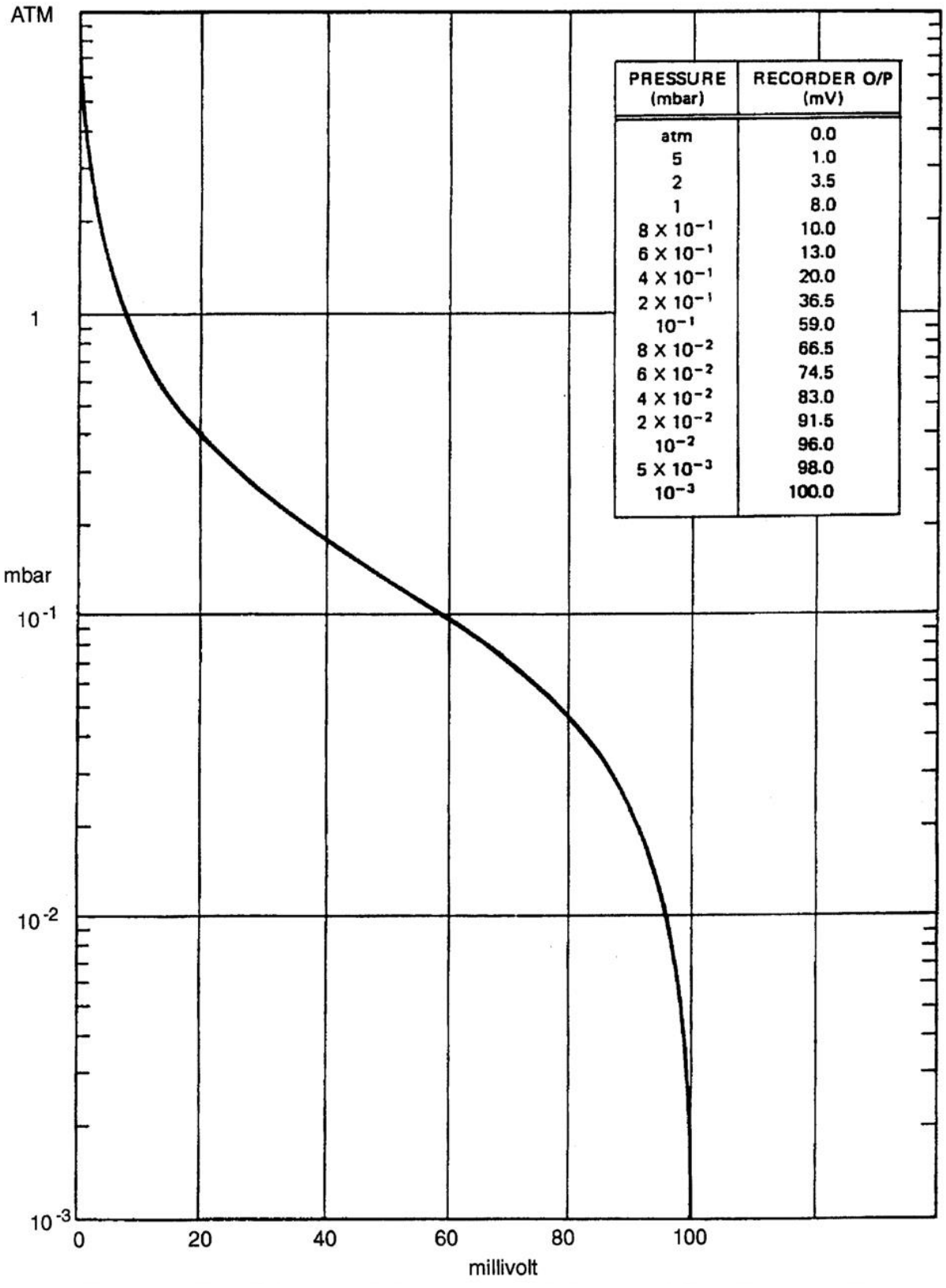
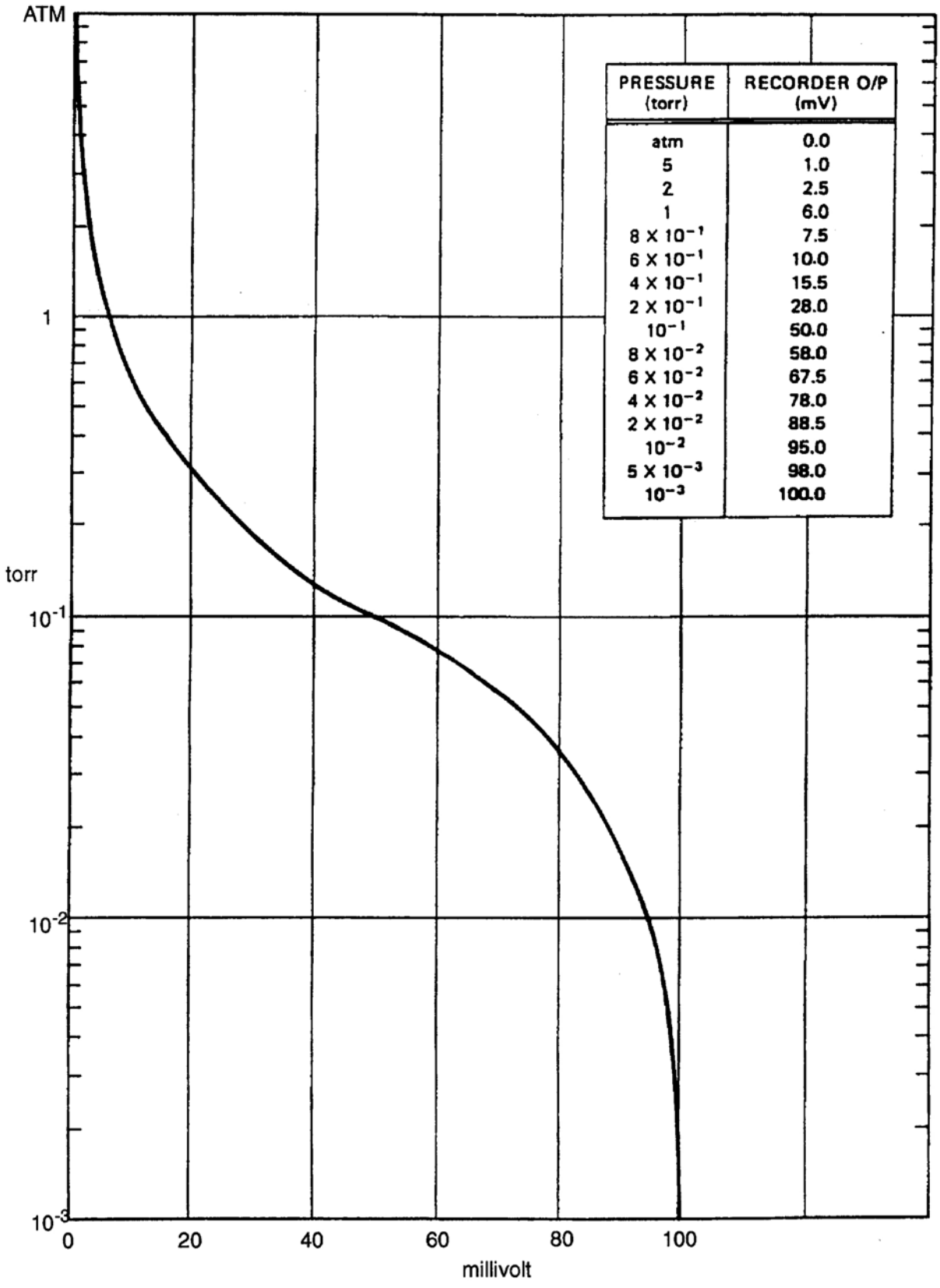


Figure 2 - Pirani 501 recorder output graph (torr)



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6 Storage and disposal

6.1 Storage

Store the instrument in a cool dry place. Do not exceed the specified conditions.

6.2 Disposal

Dispose of the instrument in accordance with local and national safety requirements.

Alternatively, you may be able to recycle the instrument and/or cables; contact Edwards or your supplier for advice (also see below).

The instrument and associated cables are within the scope of the European Directive on Waste Electrical and Electronic Equipment, 2002/96/EC. From August 2005, Edwards will offer European customers a recycling service for the instrument/cables at the end of the product's life. Contact Edwards for advice on how to return the instrument/cables for recycling.

WARNING

Do not incinerate the instrument. Incineration may cause emission of noxious fumes and metal cased capacitors may explode due to build up of internal pressure.

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7 Spares and accessories

7.1 Introduction

Edwards products, spares and accessories are available from Edwards companies in Belgium, Brazil, Canada, France, Germany, Great Britain, Hong Kong, Italy, Korea, Japan, Switzerland, U.S.A., and a world wide network of distributors. The majority of these centres employ Service Engineers who have undergone comprehensive Edwards training courses.

7.2 Spares

The Pirani 501 has no serviceable parts.

7.3 Accessories

Pirani gauge PRE10K	D024-28-000
Gauge head extension lead 5 m	D368-36-005
Gauge head extension lead 15 m	D368-36-015
Gauge head extension lead 30 m	D368-36-030

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Return the equipment or components for service

Before you send your equipment to us for service or for any other reason, you must send us a completed Declaration of Contamination of Vacuum Equipment and Components – Form HS2. The HS2 form tells us if any substances found in the equipment are hazardous, which is important for the safety of our employees and all other people involved in the service of your equipment. The hazard information also lets us select the correct procedures to service your equipment.

We provide instructions for completing the form in the Declaration of Contamination of Vacuum equipment and Components – Procedure HS1.

If you are returning a vacuum pump, note the following:

- If a pump is configured to suit the application, make a record of the configuration before returning the pump. All replacement pumps will be supplied with default factory settings.
- Do not return a pump with accessories fitted. Remove all accessories and retain them for future use.
- The instruction in the returns procedure to drain all fluids does not apply to the lubricant in pump oil reservoirs.

Download the latest documents from www.edwardsvacuum.com/HSForms/, follow the procedure in HS1, fill in the electronic HS2 form, print it, sign it, and return the signed copy to Edwards.

Note: *If we do not receive a completed HS2 form, we will not accept the return of the equipment*.

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