

TRX II

Portable documenting calibrator

- Simulates and Read RTD's and thermocouples
- Sources and reads Millivolts, Volts, Milliamps, Ohms and frequency
- Measures pressure -1 to 700 Bar
- Dual readout: measure and source
- Data storage for field calibrations
- Data transfer via RS 232 or PCMCIA card



TRX II

Portable documenting calibrator

A new standard for portable multifunction calibrators

The Druck TRX II portable documenting calibrator is the culmination of many years of combined field experience with the Druck and Unomat series of calibrators.

This one self-contained, battery powered package simulates and measures RTD's thermocouples and resistance, as well as sourcing and reading milliamps, millivolts, volts and frequency. The rugged design includes an impact resistant enclosure which is fastened to the carrying case for convenience and safety. Dedicated alphanumeric and documenting keypads surround a large LCD panel with dual readout and backlight. Connectors for source and measure are kept separate and a 24V output is provided for loop power.

The TRX II's extensive measurement capabilities can include pressure measurement by connecting Druck pressure sensors which have been digitally characterised to give high accuracy.

This highly accurate and easy to use documenting calibrator gives improved data quality and quicker calibration time since data can be uploaded and downloaded via the PCMCIA card or the RS232 interface.

High performance and multi-functional

Typical accuracies:	0.01% reading $\pm 0.01\%$ FS for mA measurement. 0.05% FS for pressure measurement
Measure:	mA, mV, volts, T/C's RTD's pressure, ohms, frequency and switch state.
Source:	mA, mV, volts, T/C's RTD's ohms and frequency
Remote pressure sensors:	70 mbar to 700 bar including gauge, absolute and differential
Loop power:	24 Vdc
Data storage:	1 Mbyte and 2 Mbyte PCMCIA cards
Data transfer:	RS 232 or PCMCIA card

Simple to operate

The combined Druck and Unomat knowledge of customer needs, and innovative design, results in a high performance, yet easy to operate, multi-function documenting calibrator.

The key to the simple operation of the TRX II is the structured menu. Input and output readings are displayed simultaneously for test modes such as T-I and P-I, allowing quick comparison of the values. Used in conjunction with Linkpak-W calibration software, the TRX II will perform automatic calibrations from pre-defined procedures, calculating and reporting errors to the operator and storing the results on a PCMCIA card. This intuitive approach, whether used manually or automatically, ensures correct set up for the job at hand and improves working efficiency and data accuracy.

The TRX II provides simple and flexible data transfer to fit in with most working practices. Information can be reviewed on screen or transferred to and from the TRX II using the RS 232 interface. Alternatively, without docking the instrument to a PC, data can be transferred by exchanging PCMCIA cards.

The operating system works in several languages and provides scaling, step and ramp features for calibration and maintenance. The TRX II, which includes extensive self-test routines, can be relied upon time and time again for field calibration in extreme conditions.



Multilingual firmware supported by Linkpak-W calibration software

Connectors for external pressure sensor

Direct connection for T/C compensation wires

PCMCIA slot for card types 1 or 2

Input connectors

Shoulder strap

RS 232 for data transfer

LCD screen protected by scratch resistant anti-reflection window

Numeric keys for entering values

Carrying case secured to TRX-II

Backlight key

Output connectors

User guide for quick reference in the field



TRX II

Applications

MULTIFUNCTION PORTABLE CALIBRATOR

The TRX II has been designed for ease of use whilst meeting a wide range of application needs including calibration, maintenance and commissioning. The dual parameter display shows the measured and sourced values in large clear digits with all applicable information such as the units of measurement and range. With safety in mind, construction of the shoulder strap allows hands free operation whilst maintaining display visibility.

Some of the capabilities

- Measure/source mA
- Measure/simulate 12 types of T/C
- Measure/simulate 9 type of RTD
- Measure/source frequency and pulses
- Simulate transmitter input and measure transmitter output
- Measure/source mV/V
- Measure/source resistance
- Measure pressure: -1 to 700 bar
- Test switches: captures values on contact change

Easy to operate

The easy to operate menu driven software enables the calibrator to be set up very quickly. Simply scroll through the menus and select the appropriate parameters.

Operating and connection errors such as loop resistance mismatch and cold junction temperature sensor absence are reported. The KEYSTROKING memory enables instant recall of previously stored user tests.



TEMPERATURE SENSOR SIMULATION AND LOOP CHECKING

The auto step and ramp modes enable a single technician to test and commission control loops. The calibrator is left to generate a pre-programmed output, while the technician checks the signal further down the loop.

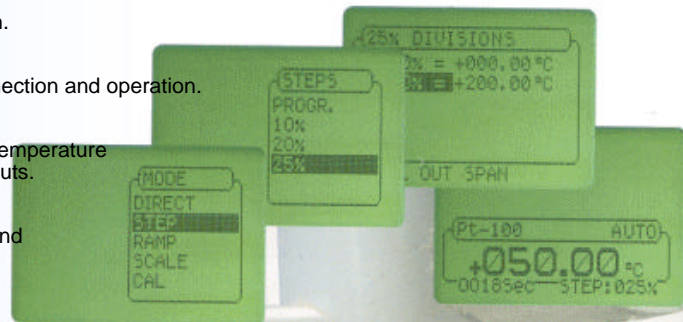
End to end control loop performance can be checked with one instrument by simulating a temperature signal at the start of the loop.

When troubleshooting apply a three step approach.

Step one:
Measure the sensor output to confirm correct connection and operation.

Step two:
Check and calibrate the transmitter by simulating temperature signals and measuring the corresponding mA outputs.

Step three:
Feed the loop with a mA signal and check wiring and instrumentation further down the line.





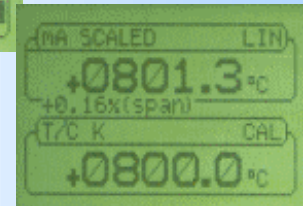
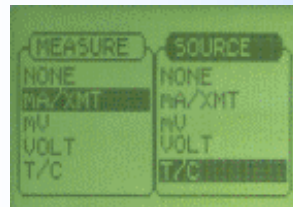
TEMPERATURE TRANSMITTER SIMULATION AND CALIBRATION



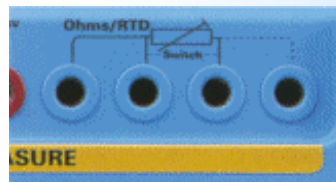
Direct connection of thermocouple compensation wires eliminates the need for special connectors and reduces additional cold junction errors. This is the most reliable and accurate method of monitoring cold junction temperatures in a portable field calibrator.

In calibration mode the display shows all the required information. Both mV and mA values are displayed in °C for easy comparison, along with the calculated error expressed as % of span or reading.

The TRX II will simulate the temperature signal to the transmitter to be calibrated and will simultaneously measure and display the output. A 24 volt power supply is provided for stand alone operation.



The connection of 2, 3 and 4 wire RTD's is detected automatically, a feature unique to Druck's portable field calibrators



CALIBRATION FOR ISO 9000



Dedicated keys for documenting field calibrations eliminate human errors. The 'AS FND' (as found) and 'AS LEFT' keys start the respective procedures for storing calibration data which can be recalled using the 'VIEW' key.



PCMCIA cards represent the most efficient data transfer media. Docking of the calibrator with the PC is unnecessary as a card containing calibration data can be exchanged for another containing new procedures/work orders, enabling technicians and calibrators to spend more time in the field.

Data is transferred to the PC from the PCMCIA card or the RS 232 interface for analysis, certificate printing and archiving. Exporting facilities are provided for wordprocessor and spreadsheet applications or in-house maintenance systems.



REMOTE PRESSURE SENSORS

Remote pressure sensors offer a cost effective means of expanding the capabilities of the TRX II, for example:

- Calibration of pressure transmitters
- Testing pressure switches
- For differential pressure applications
- For flow measurement calibrations

The capability of the TRX II can be extended by adding up to 8 external pressure sensors (connected one at a time). With ranges from 70 mbar to 700 bar and all welded stainless steel construction, sensors can be chosen to suite many applications. For convenience a single detachable cable assembly (part No. 230) connects any of the standard remote pressure sensors to the TRX II. Druck has applied the latest technology and production techniques to develop these sensors which are digitally corrected for non-linearity and temperature effects.

Specifications

Over 50 sensor ranges are available including gauge, absolute and differential versions and with accuracy better than 0.05% FS (70mbar range 0.1% FS) even the most up to date pressure instrumentation can be maintained and calibrated.

Pressure ranges (optional)

Gauge	Part No.	Absolute	Part No.	Differential	Part No.
- 70 - 70 mbar	# 800	0- 350 mbar	# 853	0- 350 mbar	# 900
- 175 - 175 mbar	# 801	0- 700 mbar	# 854	0- 700 mbar	# 901
- 200 - 200 mbar	# 802	0- 1 bar	# 855	0- 1 bar	# 902
- 350 - 350 mbar	# 803	0- 1.4 bar	# 856	0- 1.5 bar	# 903
- 700 - 700 mbar	# 804	0- 2 bar	# 857	0- 2 bar	# 904
- 1 - 1 bar	# 805	0- 3.5 bar	# 859	0- 3.5 bar	# 905
- 1 - 1.4 bar	# 806	0- 5 bar	# 860	0- 5 bar	# 906
- 1 - 2 bar	# 807	0- 7 bar	# 861	0- 7 bar	# 907
- 1 - 3.5 bar	# 809	0- 10 bar	# 862	0- 10 bar	# 908
- 1 - 5 bar	# 810	0- 14 bar	# 863	0- 15 bar	# 909
- 1 - 7 bar	# 811	0- 20 bar	# 864	0- 20 bar	# 910
- 1 - 10 bar	# 812	0- 30 bar	# 865	0- 35 bar	# 911
- 1 - 14 bar	# 813	0- 35 bar	# 866		
- 1 - 20 bar	# 814	0- 40 bar	# 867		
- 1 - 30 bar	# 815	0- 70 bar	# 868		
- 1 - 35 bar	# 816				
0 - 40 bar	# 817				
0 - 70 bar	# 818				
0 - 120 bar	# 819				
0 - 140 bar	# 820				
0 - 160 bar	# 821				
0 - 200 bar	# 822				
0 - 350 bar	# 823				
0 - 400 bar	# 824				
0 - 500 bar	# 825				
0 - 700 bar	# 826				

Comments

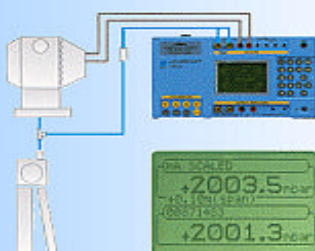
Maximum line pressure 35 bar
Differential ranges
uni-directional use only

Pressure connection: G1/4 (female)

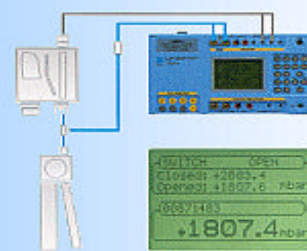
two adaptors are provided to convert to
G1/4B (male) and 1/4NPT (male).

1.5 metre cable #230 a detachable PTFE cable assembly
to connect the remote pressure sensors to the TRX II

Application : Pressure transmitter



Pressure switch



TRX II

Standard specification



MEASURE

Input	Range	1 Year Accuracy	Resolution	Remark
mV	0...100 mV	0.02% + 0.01%	0.001	R - input > 20 M Ohm
	100...600 mV	0.025% + 0.005%	0.01	
V	0...6 V	0.025% + 0.005%	0.0001	R - input > 1M Ohm
	6...60 V	0.05% + 0.005%	0.001	
mA	0...52 mA	0.01% + 0.01%	0.001	R - input 2.5 Ohm fused
Ohms	0...400 Ohm	0.005% + 0.02%	0.01	at 0.9 mA excitation
	400...2000 Ohm	0.02% + 0.015%	0.1	at 0.9 mA excitation
Frequency	0... 655 Hz	0.006%	0.01	R - input > 300 k Ohm
	655... 1310 Hz	0.1 Hz	0.1	R - input > 300 k Ohm
	1310...20,000 Hz	1 Hz	1	R - input > 300 k Ohm
Counts/minute	0...6 x 10 ⁵	1 c/min.	1	R - input > 300 k Ohm
Counts/hour	0...10 ⁷ -1	1 c/hour	1	R - input > 300 k Ohm
Totalizing	0...10 ⁸ -1	infinite	1	R - input > 300 k Ohm

Accuracy (% of reading + % of range)

SOURCE

Input	Range	1 Year Accuracy	Resolution	Remark
mV	-10...100 mV	0.01% + 0.005%	0.001	R - output < 2.0 M Ohm
V	0 ... 12 V	0.01% + 0.005%	0.0001	R - output < 2.0 M Ohm
mA	0 ... 24 mA	0.01% + 0.02%	0.001	R - max 900 Ohm
Ohms	0 ... 400 Ohm	0.005% + 0.02%	0.01	at 1 mA excitation
	0 ... 2000 Ohm	0.02% + 0.015%	0.1	at 1 mA excitation
Pulse	0 ... 10 ⁵ -1	infinite	1	0 ... 24V/34 mA max.
Frequency	0 ... 100 Hz	0.01 Hz +/- 1 LSD	0.01	0 ... 24V/34 mA max.
	0 ... 200,000 Hz	1 Hz	1	0 ... 24V/34 mA max.
pulses/min	0 ... 6000	1 p/min	1	0 ... 24V/34 mA max.
pulses/min	0 ... 99,999	36 p/hour	1	0 ... 24V/34 mA max.

Accuracy (% of reading + % of range)

TEMPERATURE

RTD	Range	1 Year Accuracy	Resolution
Pt1000 *1	-200/400 °C	Measure 0.2 °C	0.1 °C
Pt500 *1	-200/850 °C	Source 0.4 °C	0.1 °C
Pt200 *1	-200/850 °C	0.6 °C	0.1 °C
Pt100 *1	-200/850 °C	0.3 °C	0.03 °C
Pt50 *1	-200/850 °C	0.5 °C	0.06 °C
D-100 *2	-200/645 °C	0.3 °C	0.03 °C
Ni100 *3	-60/250 °C	0.2 °C	0.1 °C
Ni120 *4	-80/260 °C	0.2 °C	0.1 °C
Cu10 *5	-200/260 °C	2.0 °C	0.3 °C

*1 = IEC 751, *2 = JIS 1604-1989, *3 = DIN 43760, *4 = MINCO 7,

*5 = MINCO 16-9

Best case, Mid Range accuracies

T/C	Range	1 Year Accuracy	Resolution
J *1	-210...1200 °C	Measure 0.5 °C	0.1 °C
L *2	-200...900 °C	Source 0.3 °C	0.1 °C
K *1	-270...1370 °C	0.6 °C	0.1 °C
T *1	-270...400 °C	0.3 °C	0.1 °C
U *2	-200...600 °C	0.3 °C	0.1 °C
B *1	50...1820 °C	1.0 °C	0.1 °C
R *1	-50...1769 °C	1.0 °C	0.1 °C
S *1	-50...1769 °C	1.4 °C	0.1 °C
E *1	-270...1000 °C	0.4 °C	0.1 °C
N *1	-270...1300 °C	0.6 °C	0.1 °C
C	0...2320 °C	1.0 °C	0.1 °C
D	0...2495 °C	1.0 °C	0.1 °C

*1 = IEC 584, *2 = DIN 43710

Best case, Mid Range accuracies

Note: Thermocouple accuracies do not include cold junction compensation errors

SPECIAL FEATURES

Temperature units

°C or °F

Temperature scales

IPTS 68 or ITS 90 selectable

Pressure units

15 units

Steps

10 programmable, 10%, 20%, 25%. Manual step or adjustable timer

Ramp

Fully programmable travel time (up/down and dwell)

Scaling

5 digits and sign on all electrical ranges

Temperature transmitter calibration

Both input and output readings in temperature units
Calibration feature extended for all output functions

Temperature transmitter simulation

mA output reads in temperature units

Signal converter

Converts any input into any output, fully isolated

Keystroking

Storage for 9 user defined test configurations

Switch test

Display freezes on open and closed with Switch resistance measurement

Data log

1 Mbyte up to 8 Mbyte of data storage

Computer interface

RS 232 and PCMCIA card

PCMCIA station

PCMCIA card type 1 or 2

Language

English, French, German, Italian, Portuguese and Spanish

Power management

Auto backlight OFF, battery low indicator and status from menu.

DISPLAY

Panel

66x40mm Graphic LCD with backlight

Readout

Typically 5 readings/second

ENVIRONMENTAL

Calibration reference

22 deg. °C ±1°C, R.H. 45% +/-15%

Accuracies

Accuracies true for 17°C to 27 °C. Outside these limits add 0.0005%/°C typically

Reference for all electrical parameters only

Temperature

Operation:-10 °C to 50 °C

Humidity:

0-90% non condensing

Sealing

IP 53

Conformity

EN50081-1, EN50082-1, CE Marked

Physical

1.2kg, 210x120x50mm

Power supply

4x1.5 V alkaline 'C' cells or 4 x 1.2 V Ni-Cad cells

TRX II

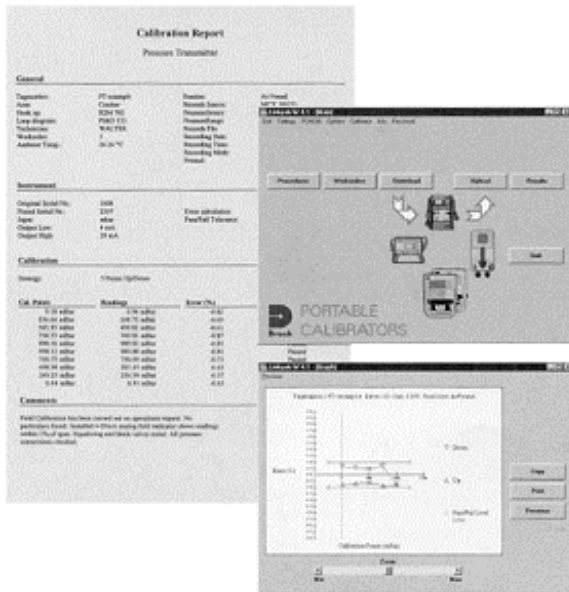


Options and related products

OPTIONS

(A) Linkpak W calibration software P/N LinkW

Linkpak W calibration software has been developed to help meet the growing demand on industry to comply with quality systems and calibration documentation. Test procedures are created on screen in a Windows® based utility and devices due for calibration are reported and grouped into work orders for transfer to the calibrator. Calibration results are uploaded to the PC, via the RS 232 interface or PCMCIA card, for analysis and to print calibration certificates. For further information refer to the Linkpak W data sheet.



(B) Remote pressure sensors P/N (refer to pressure range table)

Sensors from 70 mbar to 700 bar are available for use with the TRX II. The calibrator has a single remote channel which can be configured for use with up to 8 sensors (one at a time). At least one cable assembly (Part No. 230) should be ordered to connect any of the standard remote pressure sensors to the TRX II.

(C) Charger/Elimator P/N 13603 state 110 or 230v

This adaptor has been designed with two functions. It can either power the TRX II from line voltage or it can recharge Ni-cad batteries. The charger and adaptor circuits are separate, allowing the user to recharge and operate the unit simultaneously.

ASSEMBLIES

The TRX II is supplied with carrying case, test leads, user guide, handbook and calibration certificate as standard.

CALIBRATION STANDARDS

Calibrators manufactured by Druck Limited are calibrated against precision calibration equipment traceable to international standards.

RELATED PRODUCTS

Intecal calibration management software

Intecal Windows® based software builds on the basic concept of Linkpak W supporting laboratory and field calibrations with extensive management and analysis features. Intecal interface with a range of instruments and offers a complete solution to calibration management.

Portable field calibrators

Druck manufacture a wide range of portable pressure, temperature and electrical field calibrators. A selection of these are shown below.



Laboratory and workshop instruments

Druck also manufacture a comprehensive range of pressure indicators and controllers. Included in this range are the Pressuremarts industrial deadweight testers and the Ruska high precision controllers and primary standard piston gauges.

Pressure Transducers and transmitters

Druck instruments complement an extensive range of pressure transducers and transmitters, including the RTX and Smart/HART®STX process pressure transmitters. Please refer to manufacturer for further information on related products.

ORDERING INFORMATION

Please state the following (where applicable):

1. Model number TRX II.
2. Options, including part numbers. For remote pressure sensors please also state the pressure range required.

Note: Options should be ordered as separate items.

Continuing development sometimes necessitates specification changes without notice.



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更多产品请看本公司产品专用销售网站：

商斯达中国传感器科技信息网：<http://www.sensor-ic.com/>

商斯达工控安防网：<http://www.pc-ps.net/>

商斯达电子元器件网：<http://www.sunstare.com/>

商斯达微波光电产品网：[HTTP://www.rfoe.net/](http://www.rfoe.net/)

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商斯达实业科技产品网：<http://www.sunstars.cn/>

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电话：0755-83370250 83376489 83376549 83607652 83370251 82500323

传真：0755-83376182 (0) 13902971329 MSN: SUNS8888@hotmail.com

邮编：518033 E-mail:szss20@163.com QQ: 195847376

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