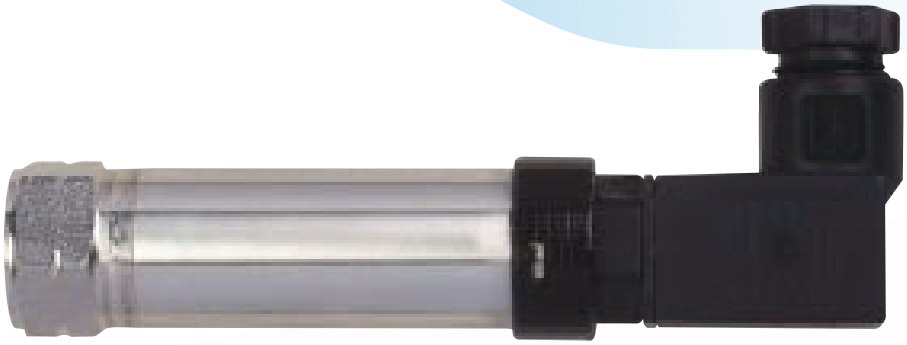
1500 SERIES

Druck

1500 Series

Low Cost Industrial Pressure Sensors

- Industry proven Druck technology
- Complete range of voltage/current outputs
- Ranges from 1 bar to 120 bar
- All stainless steel and Hastelloy construction
- OEM customised versions available
- 18 month warranty standard



1500 Series

Low Cost Industrial Pressure Sensors

High Performance Technologies

Established in 1972, GE Druck specialises in the design and manufacture of high performance pressure sensors for a wide range of industries and applications including aerospace and motorsport amongst many others, using proven micromachined silicon and related technologies.

GE Druck has its own comprehensive and technologically advanced silicon processing facility. It is one of only a few companies worldwide converting raw silicon into finished products, using techniques such as advanced micromachining. This ensures high sensor performance.

Multi-disciplined engineering teams are experienced in the use of hybrids, ASICs, microprocessors and surface mount technology. Together with packaging design and other facets of engineering, GE Druck provides a complete solution for the diverse world of pressure measurement.

1500 Series concept

This low cost sensor package is aimed at OEM manufacturers and end users who require a high quality, cost effective pressure sensor, for high volume pressure measurement applications.

The 1500 series is manufactured using a low cost piezo-resistive silicon sensor with a choice of two basic mechanical user configurations (cable or DIN plug) and three electrical formats:- 4-wire millivolt **MT Series***, 3 wire voltage **VT series** or 2 wire 4-20mA **XT series.**

This product range is ideally suited to a broad range of industrial applications and a few typical examples are listed below:

- **Plant automation** - monitoring and control of plant machinery
- **Refrigeration -** measurement of refrigeration fluid pressure
- **Compressors** - pneumatic compressor measurement
- **Train braking** - train braking system monitoring
- **Gas volume correction** - gas pressure measurement
- **Pumps** - measurement of inlet and outlet fluid pressures

Low Cost of Ownership

The inherently high performance of GE Druck silicon technology and rugged packaging ensures long term service and reliability, even in harsh operating conditions. This ensures low cost of ownership backed by an 18 month warranty as standard.

Build Quality

GE Druck is committed to producing the highest quality products. This commitment extends from initial concept and development through to manufacturing, type testing and despatch.

GE Druck is approved to the highest international quality standards, including ISO 9001 and many industry specific standards. It is also approved by many companies who apply their own specific, detailed QA requirements.

In addition, UKAS accredited GE Druck Laboratories provide traceability to International Standards for pressure, electrical and temperature measurements.

**MT Series is a future release*

Druck

STANDARD SPECIFICATION

Pressure Measurement

Operating Pressure Range**
Any zero based Full Scale (FS) range from:-
1 to 60bar gauge or absolute
60 to 120 bar absolute
Other units may be specified e.g psi, kpa, inH20, mmHg, mH20, kg/cm2

Over Pressure
All pressure ranges will withstand 2 x FS overpressure without change in calibration

Pressure Containment
4 x operating pressure range nominal

Media Compatibility
Fluids and gases compatible with 316L stainless steel and Hastelloy C276 (NACE compatible grades)

Supply Voltage
MT 1500*:
10 volts @ 4mA nominal
Output fully ratiometric to supply
VT 1500:
8 to 28 Vdc (minimum excitation voltage must be at least 3 Vdc above the maximum output)
Reverse polarity protected
XT 1500:
8 to 28 Vdc (minimum excitation voltage that must appear across transmitter terminals is 8Vdc and is given by:
Vmin = Vs - (0.02 x RL)
where Vs = supply volts,
R_L = total loop ohms
Reverse polarity protected

Output Signal
MT 1500*:
100mV nominal (4-wire configuration)
VT 1500:
Choose from the following standard configuration of true zero, 3-wire voltage outputs; 0 to 5 Vdc, 0 to 10 Vdc and 1 to 6 Vdc
Others available - refer to GE Druck
XT 1500:
4 to 20mA loop (2 wire configuration)

Load Impedance (MT* 1500 only)
Greater than 100k ohms for quoted performance

Output Noise
10mV pk-to-pk (measured DC to 2 KHz)

Output Impedance
25Ω maximum (VT 1500)
2kΩ (MT 1500*)

Maximum Output Current (VT1500)
1 mA

Start-up Time
Less than 30ms

Performance

Static Accuracy
±0.5% FS BSL including the effects of non-linearity, hysteresis and repeatability

Thermal Accuracy
Including the effects of thermal errors over the temperature ranges indicated:
±1% FS over -10 to +50°C
±2% FS over -20 to +80°C

Zero and Span Setting
±0.5% span (factory set)

Long Term Stability
Typically ±0.2% FS per annum maximum

Operating Temperature Range
-40 to +100°C
(+80°C maximum for MT/VT/XT 1520)*

Process Media Temperature
-40 to 135°C

Insulation Resistance
Greater than 10 MΩ at 500 Vdc

Voltage Spike Protection
Units will withstand 600V spike test to ENV 50142 without damage, applied between excitation lines and case

Vibration
20g sinusoidal as per MIL-STD-202F, Method 204, condition C

Shock
1000g, fi ms, fi sine as per MIL-STD-202F

Physical

Ingress Protection
Sealed to IP 65/NEMA 4X

Pressure Connection
G1/4 female or 1/4NPT female
Others available - refer to GE Druck

Electrical Connection
Cable gland or Mini DIN connector
Others available - refer to GE Druck

Documentation
Statement of compliance supplied

Safety

EMC emissions	EN50081-1
EMC Immunity	EN50082-1
Certification	CE marked

PED compliant
CE marked to heavy industrial
Note: 'Operating Pressure Range' is equivalent to maximum working pressure (Ps) as referred to in the PED.

ORDERING INFORMATION

Please state the following:
(1) Select model number

Code	Output Voltage
MT*15	4-wire, millivolt
VT 15	True zero, 3-wire voltage
XT 15	2-wire, 4-20mA

Code	Electrical Connections
10	Mini-DIN
20	Cable gland

VT 15 10 Typical Model No.

(2) Pressure range and units
(3) Gauge or absolute
(4) Output voltage (VT1500 only)
(5) Pressure connection
(6) Electrical connection
(7) Cable length in metres where required

Note: Minimum order quantity 100 pieces

CALIBRATION STANDARDS

Instruments manufactured by GE Druck are calibrated against precision pressure calibration equipment which is traceable to International Standards.

Continuing development sometimes necessitates specification changes without notice.

UKAS CALIBRATION 0221

LLOYD'S REGISTER QUALITY ASSURANCE ISO9001 UKAS QUALITY MANAGEMENT 001

OPTIONS

For all non-standard requirements and product customisation, contact GE Druck to discuss your application in detail.

**MT is a future release. GE Druck reserve the right to change specifications without notice.*

*** Pressure ranges above 20 bar are for future release.*

Druck

Related Products

High Performance Pressure Sensor
PTX 7500 Series

- Ranges from 70 mbar to 700 bar
- Accuracy up to 0.04%
- Long term stability 0.1% per year

Industrial Pressure Sensor
PTX/PMP 1400 Series

- Low cost/ex-stock delivery
- Fixed ranges
- 0.15% accuracy

Low Pressure Sensors
LP 1000

- Ranges from 0.25 mbar to 15 mbar
- Fully wet/wet compatible
- Gauge or differential

Rugged Low Cost Test Tools

- For transmitters/transducers/loops
- Source pressure, mA, voltage
- Measure/simulate RTD's T/Cs

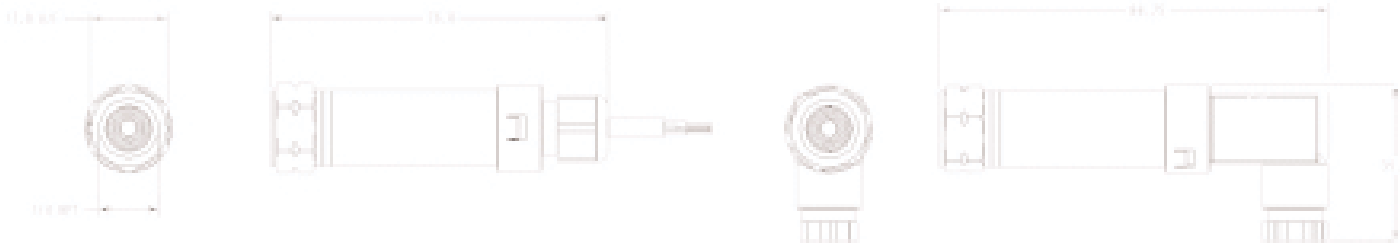
Rugged Portable Calibrators

- Pressure/temperature/electrical
- Measure, source, simulate
- Integral sensor and loop power

Digital Process Indicators

- Range of measured parameters
- Calibrated with sensors
- High accuracy

Installation Drawings - *Dimensions in mm*



Electrical Connection Details - 1520 Series (Cable versions)

Red Core	VT/XT: Supply +ve
Yellow Core	VT/XT: Output +ve/XT not used
Blue Core	XT: Supply -ve/VT not used
White Core	VT: Common/XT not used

Electrical Connection Details - 1510 Series (DIN plug versions)

PIN 1	VT: Common/XT: Supply -ve
PIN 2	VT: Output +ve/XT not used
PIN 3	VT: Supply +ve/XT: Supply +ve
PIN 4	VT/XT: Not used

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