TVC-3 TrueVac™ Pressure Controller & Display

Universal multi-channel vacuum pressure instrument and display. Setting new standards for uncompromising performance and flexibility.

Benefits & features

- 1, 2 or 3 channel configurations with simultaneous pressure readout
- Compatible with a large selection of active gauges from various vendors
- Works with digital and analog Gauges
- 4" high resolution touchscreen
- Intuitive, easy-to-use menu user interface
- Program and configure digital Transducer settings
- PC connectivity via USB interface
- Bench top or rack build-in mounting options
- 230 VAC supply voltage – no external power supply
- 96x96mm DIN43700 housing

Typical applications

- Research and development
- High energy physics
- Semiconductor processing
- Thin film coating
- Hydrogen storage
- Space simulation

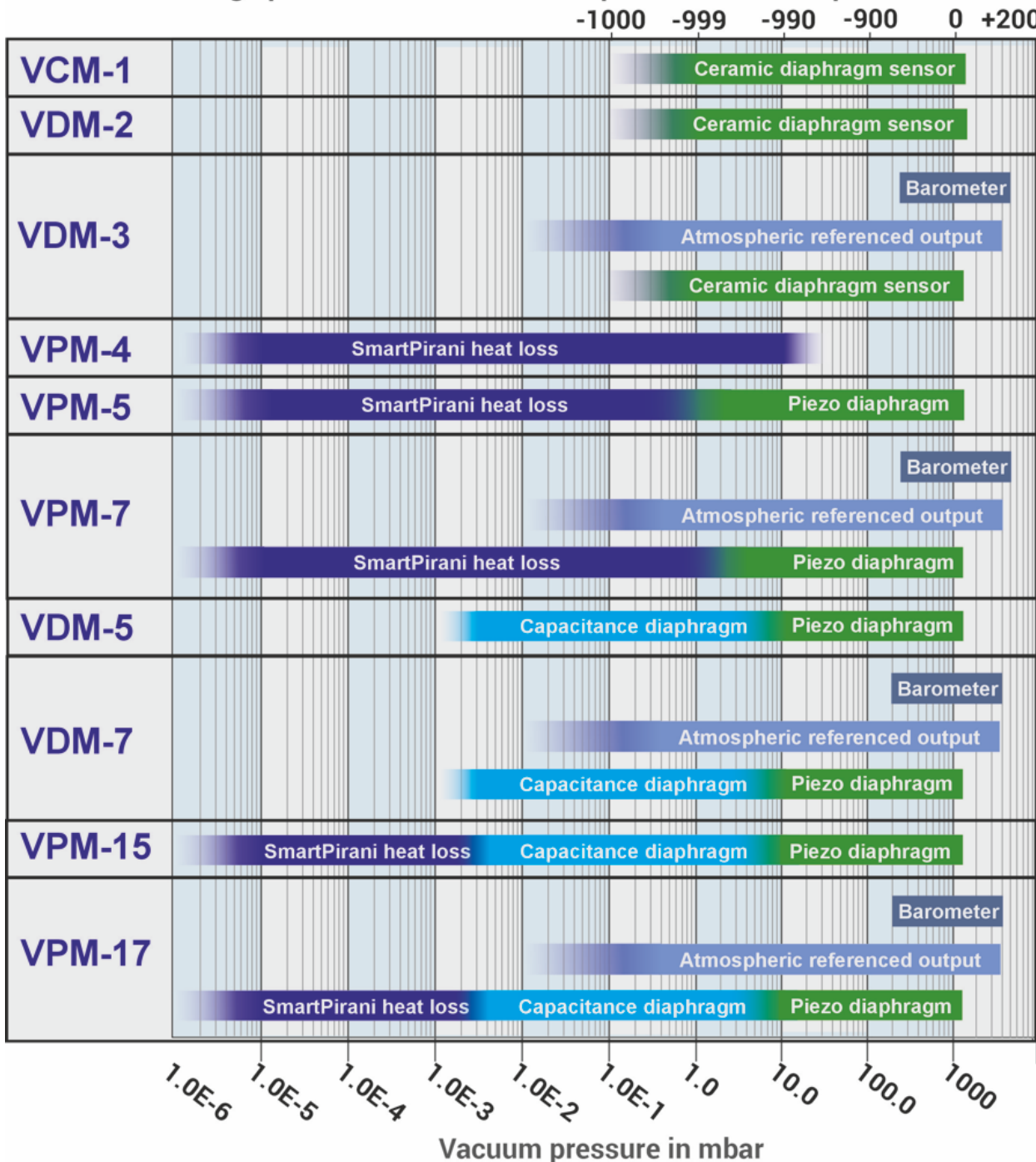## Preliminary Product Datasheet

SENS4

⊪SENS⁴

Versatile Vacuum Controller

The TrueVac™ digital controller and display provides fast and easy access to measurement data from both Sens4 vacuum transducers and a wide range of active vacuum transducers from other manufacturers.

Designed for seamless integration, the controller automatically detects connected Sens4 transducers, ensuring digital data transfer that is immune to cable length limitations and electrical noise interference. This guarantees precise and reliable measurement data for your applications.

Gauge pressure relative to atmospheric barometric pressure in mbar

VCM-1	Ceramic diaphragm sensor	
VDM-2	Ceramic diaphragm sensor	
VDM-3	Barometer / Atmospheric referenced output / Ceramic diaphragm sensor	
VPM-4	SmartPirani heat loss	
VPM-5	SmartPirani heat loss / Piezo diaphragm	
VPM-7	Barometer / Atmospheric referenced output / SmartPirani heat loss / Piezo diaphragm	
VDM-5	Capacitance diaphragm / Piezo diaphragm	
VDM-7	Barometer / Atmospheric referenced output / Capacitance diaphragm / Piezo diaphragm	
VPM-15	SmartPirani heat loss / Capacitance diaphragm / Piezo diaphragm	
VPM-17	Barometer / Atmospheric referenced output / SmartPirani heat loss / Capacitance diaphragm / Piezo diaphragm	

Vacuum pressure in mbar

Unifying Measurements Across Brands

The TVC-3 Controller redefines versatility in vacuum measurement. Unlike traditional controllers, the TVC-3 accepts analog voltage signals from third-party analog active gauges, making it a unique solution for integrating measurement data from multiple gauge brands simultaneously.

With the TVC-3, you no longer need separate controllers for different gauges. This not only simplifies your setup but also enhances efficiency and reduces costs. Whether you're managing a mixed-brand vacuum system or upgrading an existing setup, the TVC-3 is your ultimate tool for seamless measurement data integration.

Intuitive easy-to-use User Interface

The 4-inch graphic touchscreen combines a visually appealing layout with intuitive functionality, enhancing both aesthetics and usability. Critical pressure measurements and parameters are displayed clearly and logically, enabling users to make informed, data-driven decisions at a glance. With the TrueVac™ intuitive menu interface, advanced capabilities are seamlessly integrated into a user-friendly design, delivering unmatched control and ease of operation.

Single or Multiple Channel Pressure Display

The TrueVac™ can be configured as single or multi-channel controller. It is equipped with advanced features like datalogging to capture pressure trends and variations over time to meet the demanding requirements of industries such as research and development, manufacturing, and laboratory settings.

PC connectivity

The USB interface offers a plug-and-play solution for transfer of measurement data, minimizing installation time and ensuring hassle-free integration into PC systems. Enjoy the convenience of instant connectivity without the need for intricate configurations.

The TrueVac™ LabVIEW driver allows seamless integration with your LabVIEW application and hardware from different vendors, fostering interoperability and versatility in the laboratory environment.

Typical Applications

The TrueVac™ offers maximum flexibility by its wide range of configurations and usage. It can be used as a stand-alone device for monitoring of pressure or as a diagnostic tool for service and checking vacuum transducers on vacuum-based equipment. Furthermore, its interface options to a digital transducer enable programming of digital parameters prior to installation on OEM equipment.

Laboratories

The TrueVac™ is ideal for use in research and development environments or university laboratories where many types and brands of vacuum gauges are often present.

Change of gauge type can easily be made by auto detection of vacuum gauge type or by a few click on the display.

Semiconductor industry

Vacuum measurement and gas control is a critical process of semiconductor manufacturing. The TrueVac is a versatile controller and can be used for service and testing existing vacuum gauges on semiconductor manufacturing equipment or be an integrated part of a process system for real time visual presentation of the measured pressure.

Hydrogen storage

Vacuum insulation plays a pivotal role in the storage of hydrogen, a clean and efficient energy carrier poised to revolutionize various sectors, including transportation and renewable energy systems.

Quality control and check of vacuum insulation pressure in hydrogen storage tanks and delivery is critically important. The TrueVac controller is an easy-to-use portable solution for insulation vacuum check.
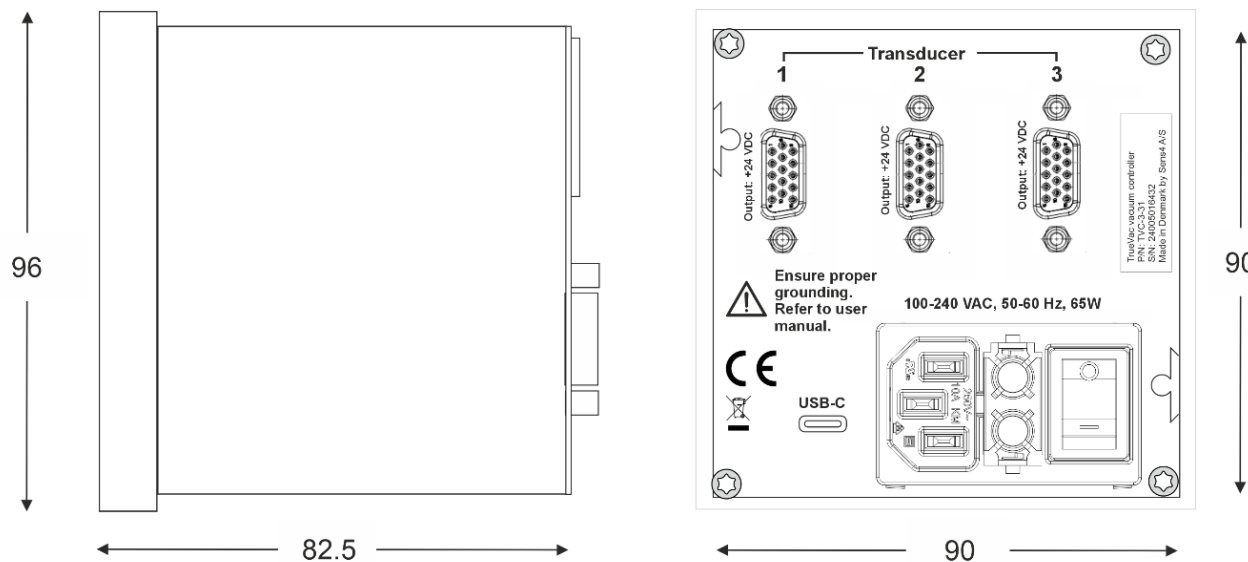
Technical Data

Specifications	
Measuring range (Transducer dependent)	1×10^{-11} to 10000 mbar (7.5×10^{-12} to 7500 Torr)
Transducer analog voltage input range	-0.050 to 10.5 VDC
Transducer digital transducer interface	RS-232 and RS-485
Number of transducer channels	1,2,3
Display	4" RGB 480×480 pixels
Touch type	Capacitive
Transducer supply voltage	24VDC
Transducer supply current per channel	600mA
Environment conditions	
Operating ambient temperature	-20 to +40 °C
Storage ambient temperature	-40 to +50 °C
Protection rating, EN 60529/A2:2013	IP40
Humidity, IEC 68-2-38	98%, non-condensing
Power supply (AC version)	
Supply voltage	100-240 VAC
Power consumption	55W (max)
Internal fuse	800 mA
Power supply (DC version)	
Supply voltage	24VDC +-2%
Power consumption	65W (max)
Internal fuse	3 A
Materials	
Enclosure	Aluminum black painted
Front frame	Plastic
Rear panel	Aluminum anodized
Approvals	
CE	EMC directive 2014/30/EU
RoHS compliance	Directive EU 2015/863

Specifications are subject to change without further notice.

Dimensions

All dimensions in millimeter.

TVC-3 TrueVac™ Compatible Transducers

Sens4

Product name	Type	Part number series	Interface type
SmartPirani™	MEMS Pirani / Piezo	VPM-5	Analog or digital
SmartPirani™ ATM	MEMS Pirani / Piezo / ATM sensor	VPM-7	Analog or digital
Ceramic	Ceramic diaphragm gauge	VDM-2	Analog or digital
DiCAP™	Capacitance diaphragm gauge	VDM-5	Analog or digital
TriCAP™	MEMS Pirani / Piezo / CDG	VPM-15	Analog or digital
TriCAP™ ATM	MEMS Pirani / Piezo / CDG / ATM	VPM-17	Analog or digital
VCM	Piezo ceramic diaphragm	VCM-1	Analog

Agilent

Product name	Type	Part number	Interface type
PVG	Pirani	PVG-500	Analog
PCG	Pirani / CDG	PCG-750	Analog
FRG	Pirani / Cold cathode	FRG-700, FRG-702	Analog
FRG	Pirani / Hot cathode	FRG-720, FRG-730	Analog
CDG	Capacitance diaphragm gauge	CDG-500	Analog

Brooks

Product name	Type	Part number	Interface type
VersaTorr	MEMS Pirani / Piezo	BVT100	Analog or digital
VersaTorr	MEMS Pirani / Piezo / ATM sensor	BVT125	Analog or digital
VersaTorr	MEMS Pirani / Piezo	BVT200	Analog or digital
VersaTorr	MEMS Pirani / Piezo / CDG / ATM	BVT225	Analog or digital
CMC	Capacitance diaphragm gauge	CMCA	Analog
XacTorr®	Capacitance diaphragm gauge	CMX1	Analog

XacTorr is registered trademark of Brooks Instrument, LLC

Digivac

Product name	Type	Part number	Interface type
DPP DuoSENS	MEMS Pirani / Piezo	DPP	Analog or Digital
DCP Quantum	Piezo / CDG	DCP	Analog or Digital
DPCP Quantum	MEMS Pirani / Piezo / CDG	DPCP	Analog or Digital

Edwards

Product name	Type	Part number	Interface type
APGX	Pirani	APG100, APG200	Analog
APG200	Pirani / Piezo	APG200	Analog
WRG	Cold cathode ionization / Pirani	WRG200	Analog
BAROCELL	Capacitance diaphragm gauge	W6021	Analog
BAROCELL	Capacitance diaphragm gauge	W6	Analog

BAROCELL is a registered trademark of Edwards Vacuum

Ebara

Product name	Type	Part number	Interface type
EGP	Pirani	EGP502	Analog
VCP	Pirani / CDG	EGPC550	Analog

Inficon

Product name	Type	Part number series	Interface type
PSG	Pirani	PSG5xx	Analog
PCG	Pirani / CDG	PCG55x	Analog
PPG	MEMS Pirani / Piezo	PPG550	Analog or digital
PPG	MEMS Pirani / Piezo / ATM sensor	PPG570	Analog or digital
Trigon™	Hot cathode / Pirani	BPG552	Analog
Trigon™	Hot cathode / Pirani / CDG	BCG552	Analog
Gemini™	Cold cathode ionization / Pirani	MPG5xx	Analog
MPG	Cold cathode ionization / Pirani	MPG4xx	Analog
Porter™	Capacitance diaphragm gauge	CDG020D	Analog
SKY®	Capacitance diaphragm gauge	CDG025D	Analog
SKY®	Capacitance diaphragm gauge	CDG045D	Analog
SKY®	Capacitance diaphragm gauge	CDG100D	Analog
Edge®	Capacitance diaphragm gauge	CDG045D2	Analog
Edge®	Capacitance diaphragm gauge	CDG100D2	Analog
Stripe®	Capacitance diaphragm gauge	CDG45Dhs	Analog
Stripe®	Capacitance diaphragm gauge	CDG100Dhs	Analog

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Kurt J. Lesker

Product name	Type	Part number	Interface type
KJLS	Pirani	PIR	Analog
KJLC	Pirani / Cold cathode	CCPG	Analog
KJLC ACG	Capacitance diaphragm gauge	AGC	Analog
KJLC ACG	Capacitance diaphragm gauge	HGC	Analog

Leybold vacuum

Product name	Type	Part number	Interface type
TERMOVAC	Pirani	TTR 90, TTR91, TTR96	Analog
TERMOVAC	Pirani / Piezo	TTR100, TTR101	Analog
PENNINGVAC	Cold cathode ionization / Pirani	PTR90	Analog
IONIVAC	Hot cathode ionization	ITR90, ITR200	Analog
CERAVAC	Capacitance diaphragm gauge	CTR90, CTR91	Analog
CERAVAC	Capacitance diaphragm gauge	CTR100, CTR101	Analog

MKS instruments

Product name	Type	Part number	Interface type
Loadlock	MEMS Pirani / Piezo / Piezo gage	901P	Analog or digital
Piezo	Piezo	902B	Analog or digital
MicroPirani™	MEMS Pirani	925	Analog or digital
DualTrans™	MEMS Pirani / Piezo	910	Analog or digital
UniMag™	Cold cathode	971B	Digital
DualMag™	Pirani / Cold cathode	972B	Analog or digital
QuadMag™	Pirani / Cold cathode / Piezo gage	974B	Analog or digital
Mini-Convectron®	Pirani	275	Analog
Baratron®	Capacitance diaphragm gauge	AA01B	Analog
Baratron®	Capacitance diaphragm gauge	AA02B	Analog
Baratron®	Capacitance diaphragm gauge	722A	Analog
Baratron®	Capacitance diaphragm gauge	727A	Analog

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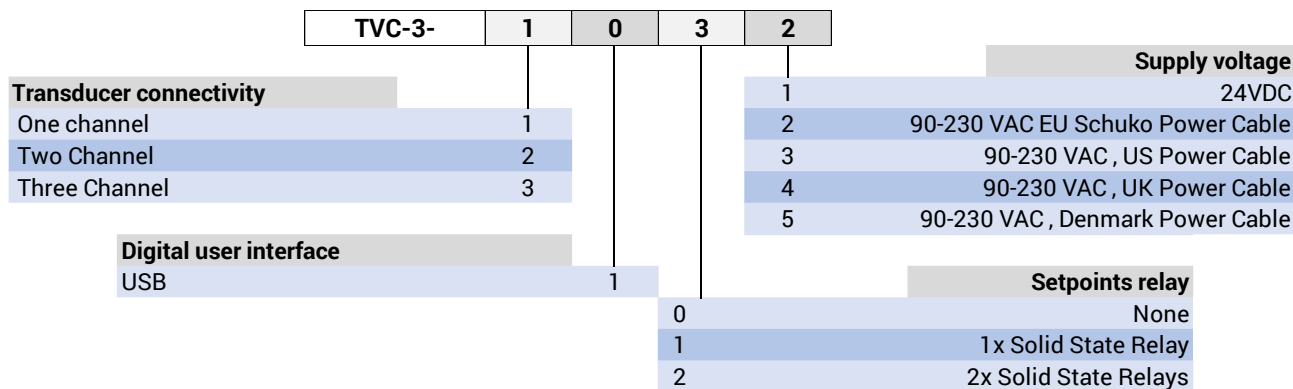
Pfeiffer vacuum

Product name	Type	Part number	Interface type
CMR36	Capacitance diaphragm gauge	PT R24	Analog
CMR37	Capacitance diaphragm gauge	PT R25	Analog
APR	Piezo	P5215	Analog
PCR	Pirani / Capacitance	PT R26	Analog
TPR	Pirani	PT R26	Analog
PKR	Cold cathode ionization / Pirani	PT T02	Analog

Thyracont

Product name	Type	Part number	Interface type
VSP	Pirani	VSP63, VSP64	Analog
VCP	Pirani	VCP63, VCP64	Analog
VSR	Pirani / Piezo	VSR53, VSR54	Analog
VCR	Pirani / Piezo	VCR53, VCR53	Analog
VSL	Pirani / Piezo	VSL53, VSL54	Analog
VCL	Pirani / Piezo	VCL53, VCL54	Analog
VSM	Pirani / Cold cathode	VSM77, VSM78, VSM79	Analog
VSH	Capacitance diaphragm gauge	VSH	Analog

Order guide

TVC-3-	1	0	3	2

Transducer connectivity

One channel	1
Two Channel	2
Three Channel	3

Digital user interface

USB	1

Supply voltage

1	24VDC
2	90-230 VAC EU Schuko Power Cable
3	90-230 VAC , US Power Cable
4	90-230 VAC , UK Power Cable
5	90-230 VAC , Denmark Power Cable

Setpoints relay

0	None
1	1x Solid State Relay
2	2x Solid State Relays

TVC-3 Transducer Cables

Part number	Description
CAB-A-03	Cable TrueVac controller for 15 pin HD D-sub transducers, 3 meter (10 ft.)
CAB-A-05	Cable TrueVac controller for 15 pin HD D-sub transducers, 5 meter (16.4 ft.)
CAB-A-10	Cable TrueVac controller for 15 pin HD D-sub transducers, 10 meter (32.8 ft.)
CAB-A-15	Cable TrueVac controller for 15 pin HD D-sub transducers, 15 meter (49 ft.)
CAB-B-03	Cable TrueVac controller for 9 pin D-sub transducers, 3 meter (10 ft.)
CAB-B-05	Cable TrueVac controller for 9 pin D-sub transducers, 5 meter (16.4 ft.)
CAB-B-10	Cable TrueVac controller for 9 pin D-sub transducers, 10 meter (32.8 ft.)
CAB-B-15	Cable TrueVac controller for 9 pin D-sub transducers, 15 meter (49 ft.)
CAB-C-03	Cable TrueVac controller for RJ45 8P8C transducers, 3 meter (10 ft.)
CAB-C-05	Cable TrueVac controller for RJ45 8P8C transducers, 5 meter (16.4 ft.)
CAB-C-10	Cable TrueVac controller for RJ45 8P8C transducers, 10 meter (32.8 ft.)
CAB-C-15	Cable TrueVac controller for 6 pin Hirschmann transducers, 15 meter (49 ft.)
CAB-D-03	Cable TrueVac controller for 6 pin Hirschmann transducers, 3 meter (10 ft.)
CAB-D-05	Cable TrueVac controller for 6 pin Hirschmann transducers, 5 meter (16.4 ft.)
CAB-D-10	Cable TrueVac controller for 6 pin Hirschmann transducers, 10 meter (32.8 ft.)
CAB-D-15	Cable TrueVac controller for 6 pin Hirschmann transducers, 15 meter (49 ft.)
CAB-E-03	Cable TrueVac controller for M12 transducers, 3 meter (10 ft.)
CAB-E-05	Cable TrueVac controller for M12 transducers, 5 meter (16.4 ft.)
CAB-E-10	Cable TrueVac controller for M12 transducers, 10 meter (32.8 ft.)
CAB-E-15	Cable TrueVac controller for M12 transducers, 15 meter (49 ft.)

Available for online Order

The TrueVac™ controller is available for quick order online. Visit our buy now shop: https://www.sens4.com/shop

About

Sens4 is a Danish technology company that develops, manufactures, markets, and distributes vacuum, pressure and temperature measuring equipment for industrial and scientific applications worldwide. It's our mission to provide compelling product solutions that fit our customers' needs and enable them to efficiently measure and control advanced processes around the world.

Learn more about Sens4 on: **sens4.com**

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