Measurement Technology

Measurement Technology for Polymer Applications
Made in Germany

gneuß

With more than 30 years of experience and over 100 international patents, the family-owned and operated company Gneuss has made a name for itself as a supplier of innovative solutions for the plastics processing industry.

Gneuss develops and supplies reliable and accurate measurement technology, thereby ensuring an important prerequisite for the production of polymer products.

Based in Bad Oeynhausen, Germany, Gneuss is committed to the expectations of products “made in Germany” while serving its customers worldwide.

With its subsidiary in the USA, offices in Brazil and China, a cooperation partner in Japan and together with representatives worldwide, Gneuss is present throughout the world. The best possible technical support, excellent field service and spare parts availability is provided on all five continents.

Support is available around the clock via a telephone service hotline. Pilot lines for trials, development, and prompt product shipment are available at several locations.

Content

Gneuss competence at a glance

Measurement Technology

- Made in Germany
- Long life
- Quick delivery
- Superior value
- Non-mercury
- Custom-built sensors
- Online-Shop
- Worldwide distribution
- Repair program
- ISO 9001 certified

The needs and specific requirements of our customers are of the highest priority. We are used to responding quickly and flexibly to new needs and to develop individual solutions based on customer requests.

Development, manufacture as well as testing of our measurement technology products all take place at our technology center at our Bad Oeynhausen, Germany site.

Leading quality standards

All Gneuss sensors have an individual 7-digit serial number, which is clearly legible and positioned permanently next to the connector in the metal housing. Even after years in operation, dirty or unclear instruments are easily recognizable.
The requirements of ISO 9001 have been successfully fulfilled for several years.

Gneuss diaphragm

The Gneuss diaphragm incorporates a proprietary membrane utilizing premium metals with a high grade of consistency. This configuration allows increased strength, while not effecting specified accuracy or response. All Gneuss sensors are furthermore coated with protective G-Coating to counteract strong adhesive melts. The benefit of extended life and increased diaphragm cycles can reduce unexpected down times or loss of production.

Non-mercury

Thanks to our NTX™-Technology, an environmentally-friendly Melt Pressure Transducer with superior performance is available from Gneuss. The pressure transducers with NTX™-Technology distinguish themselves by their low zero point drift. NTX™-series sensors are completely non-toxic, and discarded pressure transducers can therefore be simply disposed of.

Repair service

Repairing rather than replacing a pressure transducer can save costs up to 50%. Our experts at the Bad Oeynhausen site, Germany, will repair your sensors at any time and at affordable prices.

With standardized output signal - mV/ V output

DA Series Pressure Transducer

The DA Series melt pressure transducers are characterized by their high quality of workmanship and outstanding performance and are used in the plastic manufacturing and processing industries throughout the world.

Their consistent reproducibility and stable measuring values contribute to our measurement accuracies.

- Application areas up to 300 °C (572 °F)
- High temperature design for temperatures of up to 500 °C (932 °F)
- Pressure ranges from 0...50 to 0...2.000 bar (0...725 to 0...29,000 psi)
- Liquid filled measuring system
- 100 % market compatible
- Non-Mercury NTX™ version available
- Maximum reliability through new membrane technology
- Standard G-coating to counteract adhesive materials

Technical specifications

Pressure range	0...50 to 0...2000 bar
Accuracy incl. linearity, hysterisis, and reproducibility in % to full scale	0,25 % or 0,5 %
Reproducibility in % to full scale	± 0,1 %
Membrane coating	G-Coating
Resolution	infinite
Max. pressure overload without influence on operating value	2 x range up to 1000 bar (14,500 psi) 1,5 x pressure range over 1000 bar (14,500 psi)
Bridge resistance	350 Ohm Wheatstone Bridge
Supply voltage	max. 10 V DC
Output signal	2 mV/V, 3,33 mV/V
Transmission medium	NTX™ as standard
Process connection	1/2"20 UNF or M18 x 1,5
Calibration point	80 %
Insulation resistance	>1000 MOhm at 50 V
Max. temperature at diaphragm	300 °C NTX (572 °F) 400 °C HG (750 °F) 500 °C NAK (932 °F)
Max. temperature at terminal head during operation	- 40... +125 °C (40 °F...260 °F)
Zero point deviation against diaphragm temperature changes at the diaphragm % / ° C (% / 1,8 ° F)	± 0,02 bar / °C (± 0,29 psi / °C) *
Zero point deviation against temperature changes at terminal head in % / ° C (% / 1,8 ° F)	± 0,003 %
Ingress protection housing Ingress protection connector	IP 65 / IP 55
Max torque	1/2"20 UNF 30 Nm (22 lbf ft) M18 x 1,5 50 Nm (32 lbf ft)

* With standard diaphragm, transmission medium NTX™ and 1/2"20 UNF.
Subjects to modification.

Product variations (examples)

Flexible capillary
G-Armor version with robust flexible component

Integrated temperature measurement as an option (DTA series)

Special types
For example space restrictive exposed capillary

With integrated amplifier - mA or V output

DAI Series Pressure Transmitter

The DAI Series offers – in addition to maximum reliability – improved user friendliness in the form of an Auto-Zero Function for local or remote configuration. These models offer mA and V output signals for further processing.

The popular and most commonly used 2- wire and 4...20mA configuration provide unequalled interference in critical environments.

- Interference resistant signals over long distances
- No damage in case of reversed connection
- 3- and 4- wire technology available
- High temperature design for temperatures of up to 500 °C (932 °F)
- Maximum reliability through new membrane technology
- Standard G-coating to counteract adhesive materials

Technical specifications

Pressure range	0...17 to 0...2000 bar
Accuracy incl. linearity, hysterisis, and reproducibility in % to full scale	0,15%, 0,25 % or 0,5 %
Reproducibility in % to full scale	± 0,1 %
Membrane coating	G-Coating
Resolution	16 Bit
Max. pressure overload without influence on operating value	2 x range up to 1000 bar (14,500 psi) 1,5 x pressure range over 1000 bar (14,500 psi)
Bridge resistance	3500 Ohm Wheatstone Bridge
Supply voltage	19 - 32 V DC
Output signal	V or mA
Transmission medium	NTX™ as standard
Process connection	1/2"20 UNF or M18 x 1,5
Calibration point	80 %
Insulation resistance	>1000 MOhm at 50 V
Max. temperature at diaphragm	300 °C NTX (572 °F) 400 °C HG (750 °F) 500 °C NAK (932 °F)
Max. temperature at terminal head during operation	- 40... +85 °C (40 °F...185 °F)
Zero point deviation against diaphragm temperature changes at the diaphragm % / ° C (% / 1,8 ° F)	± 0,02 bar / °C (± 0,29 psi / °C) *
Zero point deviation against temperature changes at terminal head in % / ° C (% / 1,8 ° F)	± 0,003 %
Ingress protection housing Ingress protection connector	IP 65 / IP 55
Max torque	1/2"20 UNF 30 Nm (22 lbf ft) M18 x 1,5 50 Nm (32 lbf ft)

* With standard diaphragm, transmission medium NTX™ and 1/2"20 UNF.
Subjects to modification.

Product variations (examples)

Highly accurate pressure sensors
Optional with an accuracy of 0.5%, 0.25% or 0.15% of full scale

Auto-zero Function
As an option available with optical auto-zero release in the sensor head

With standardized output signal and integrated temperature measurement

DTA Series Pressure Transducer

The DTA defines the industry standard of a pressure measurement in combination with a temperature measurement. One process connection is enough to measure both values.

The unit excels in its high quality workmanship and cost efficiency. Its consistent reproducibility and stable measuring values contribute to our measurement accuracies.

- Liquid filled measuring system
- Maximum reliability through new membrane technology
- Standard G-coating to counteract adhesive materials
- Combined pressure and temperature measurement
- Robust design with G-Armor flexible components
- Applications with process temperatures of up to 500°C (932 °F) possible
- Pressure ranges from 0...50 and 0...2.000 bar (0-725 to 29,000 psi) available
- Stable output signals
- Longlife design

Technical specifications

Pressure range	0...50 to 0...2000 bar
Accuracy incl. linearity, hysterisis, and reproducibility in % to full scale	0,25 % or 0,5 %
Reproducibility in % to full scale	± 0,1 %
Membrane coating	G-Coating
Resolution	infinite
Max. pressure overload without influence on operating value	2 x range up to 1000 bar (14,500 psi) 1,5 x pressure range over 1000 bar (14,500 psi)
Bridge resistance	350 Ohm Wheatstone Bridge
Supply voltage	max. 10 V DC
Output signal	mV/V
Transmission medium	NTX™ as standard
Process connection	1/2"20 UNF or M18 x 1,5
Calibration point	80 %
Insulation resistance	>1000 MOhm at 50 V
Max. temperature at diaphragm	300 °C NTX (572 °F) 400 °C HG (750 °F) 500 °C NAK (932 °F)
Max. temperature at terminal head during operation	- 40... +125 °C (40 °F...260 °F)
Zero point deviation against diaphragm temperature changes at the diaphragm % / ° C (% / 1,8 ° F)	± 0,02 bar / °C (± 0,29 psi / °C) *
Zero point deviation against temperature changes at terminal head in % / ° C (% / 1,8 ° F)	± 0,003 %
Ingress protection housing Ingress protection connector	IP 65 / IP 55
Max torque	1/2"20 UNF 30 Nm (22 lbf ft) M18 x 1,5 50 Nm (32 lbf ft)

* With standard diaphragm, transmission medium NTX™ and 1/2"20 UNF.
Subjects to modification.

Product variations (examples)

Special shaft length

PT100 measuring element

With integrated amplifier and integrated temperature measurement

DTAI Series Pressure Transmitter

The DTAI first of all offers the user the comfort of operating a DAI in combination with a temperature measurement. One process connection is enough to measure both values.

These model offers mA and V output signals for further processing. The popular and most commonly used 2-wire and 4...20 mA configurations provide unequalled interference in critical environments.

- Liquid filled measuring system
- Maximum reliability through new membrane technology
- Standard G-coating to counteract adhesive materials
- Combined pressure and temperature measurement
- Robust design with G-Armor flexible components
- Applications with process temperatures of up to 500°C (932 °F) possible
- Pressure ranges from 0...17 and 0...2.000 bar (0-240 to 29,000 psi) available
- Interference resistant signals over long distances
- Stable output signals

Technical specifications

Pressure range	0...17 to 0...2000 bar
Accuracy incl. linearity, hysterisis, and reproducibility in % to full scale	0,15 %, 0,25 % or 0,5 %
Reproducibility in % to full scale	± 0,1 %
Membrane coating	G-Coating
Resolution	16 Bit
Max. pressure overload without influence on operating value	2 x range up to 1000 bar (14,500 psi) 1,5 x pressure range over 1000 bar (14,500 psi)
Bridge resistance	3500 Ohm Wheatstone Bridge
Supply voltage	15...32 V DC
Output signal	V oder mA
Transmission medium	NTX™ as standard
Process connection	1/2"20 UNF or M18 x 1,5
Calibration point	80 %
Insulation resistance	>1000 MOhm at 50 V
Max. temperature at diaphragm	300 °C NTX (572 °F) 400 °C HG (750 °F) 500 °C NAK (932 °F)
Max. temperature at terminal head during operation	- 40... +85 °C (40 °F...185 °F)
Zero point deviation against diaphragm temperature changes at the diaphragm % / ° C (% / 1,8 ° F)	± 0,02 bar / °C (± 0,29 psi / °C) *
Zero point deviation against temperature changes at terminal head in % / ° C (% / 1,8 ° F)	± 0,003 %
Ingress protection housing Ingress protection connector	IP 65 / IP 55
Max torque	1/2"20 UNF 30 Nm (22 lbf ft) M18 x 1,5 50 Nm (32 lbf ft)

* With standard diaphragm, transmission medium NTX™ and 1/2"20 UNF.
Subjects to modification.

Product variations (examples)

Special shaft length

PT100 measuring element

With heated sensor tip - mV/ V output

DAP Series Pressure Transducer

The DAP Series incorporates a heated sensor tip, which limits the potential for sensor damage relating to the membrane, resulting from installation or removal of the pressure transmitter.

The Gneuss patented heated sensor tip allows the sensor to be easily removed from a "frozen" melt without any problems. The diaphragm is not damaged when the polymer contracts.

The DAP has revolutionized the handling of critical materials, for example PC, PMMA or ABS.

- Heater with 24 V
- Combined pressure and temperature measurement
- Robust design with G-Armor flexible components
- G-coating to counteract adhesive materials
- Patented technology
- Removal possible even when extrusion line is down or at ambient temperature
- Longlife design

Technical specifications

Pressure range	0...50 to 0...2000 bar
Accuracy incl. linearity, hysterisis, and reproducibility in % to full scale	0,25 % or 0,5 %
Reproducibility in % to full scale	± 0,1 %
Membrane coating	G-Coating
Resolution	infinite
Max. pressure overload without influence on operating value	2 x range up to 1000 bar (14,500 psi) 1,5 x pressure range over 1000 bar (14,500 psi)
Bridge resistance	350 Ohm Wheatstone Bridge
Supply voltage	max. 10 V DC
Output signal	mV/V
Transmission medium	NTX™ as standard
Process connection	1/2"20 UNF or M18 x 1,5
Calibration point	80 %
Insulation resistance	>1000 MOhm at 50 V
Max. temperature at diaphragm	300 °C NTX (572 °F) 400 °C HG (750 °F) 500 °C NAK (932 °F)
Max. temperature at terminal head during operation	- 40... +125 °C (40 °F...260 °F)
Zero point deviation against diaphragm temperature changes at the diaphragm % / ° C (% / 1,8 ° F)	± 0,02 bar / °C (± 0,29 psi / °C) *
Zero point deviation against temperature changes at terminal head in % / ° C (% / 1,8 ° F)	± 0,003 %
Ingress protection housing Ingress protection connector	IP 65 / IP 55
Max torque	1/2"20 UNF 30 Nm (22 lbf ft) M18 x 1,5 50 Nm (32 lbf ft)

* With standard diaphragm, transmission medium NTX™ and 1/2"20 UNF.
Subjects to modification.

Product variations (examples)

Special diaphragm coating
Special coating options available

HCS Heater Controller System
Heater controller unit (DAP Series)

With heated sensor tip - mA; V output

DAIP Series Pressure Transmitter

The DAIP Melt Pressure Transmitter combines an extremely high level of user-friendliness with the advantages of the heated diaphragm.
Thanks to the Auto-Zero function, the sensor can be calibrated either directly on the unit itself or from the extruder control cabinet / DCS room. The sensor is available with mA or V signals.
The patented, heated tip means that the sensor can be safely removed without the risk of damage even when the polymer is cold. The risk of damage from extremely sticky materials such as PC, PMMA or ABS can be reliably avoided.

Technical specifications

Pressure range	0...50 to 0...2000 bar
Accuracy incl. linearity, hysterisis, and reproducibility in % to full scale	0,15%, 0,25 % or 0,5 %
Reproducibility in % to full scale	± 0,1 %
Membrane coating	G-Coating
Resolution	16 Bit
Max. pressure overload without influence on operating value	2 x range up to 1000 bar (14,500 psi) 1,5 x pressure range over 1000 bar (14,500 psi)
Bridge resistance	3500 Ohm Wheatstone Bridge
Supply voltage	15...32 V DC
Output signal	V oder mA
Transmission medium	NTX™ as standard
Process connection	1/2"20 UNF or M18 x 1,5
Calibration point	80 %
Insulation resistance	>1000 MOhm at 50 V
Max. temperature at diaphragm	300 °C NTX (572 °F) 400 °C HG (750 °F) 500 °C NAK (932 °F)
Max. temperature at terminal head during operation	- 40... +85 °C (40 °F...185 °F)
Zero point deviation against diaphragm temperature changes at the diaphragm % / ° C (% / 1,8 ° F)	± 0,02 bar / °C (± 0,29 psi / °C) *
Zero point deviation against temperature changes at terminal head in % / ° C (% / 1,8 ° F)	± 0,003 %
Ingress protection housing Ingress protection connector	IP 65 / IP 55
Max torque	1/2"20 UNF 30 Nm (22 lbf ft) M18 x 1,5 50 Nm (32 lbf ft)

* With standard diaphragm, transmission medium NTX™ and 1/2"20 UNF.
Subjects to modification.

- Heater with 24 V
- Combined pressure and temperature measurement
- Robust design with G-Armor flexible components
- G-coating to counteract adhesive materials
- Patented technology
- Removal possible even when extrusion line is down or at ambient temperature
- Longlife design

Product variations (examples)

Auto-zero Function
As an option available with optical auto-zero release in the sensor head

Special diaphragm coating
Special coating options available

HCS Heater Controller System
Heater controller unit
(DAP Series)

Explosion-proof - 4...20 mA output

DAIX Series Pressure Transmitter

The DAIX series covers the use in potentially explosive atmospheres. The pressure transmitters of ignition protection type 'Ex i intrinsically safe' allow secure signal transmission even in the harshest interference field environments. Many mechanical options complete the profile and guarantee problem-free and fit-for-purpose use in all possible applications of the plastics and chemistry sector. The uncompromising new development of the DAIX redefines the market standard for explosion-proof devices and is another perfect example from the reliable Gneuss product range.

- 0,5%, 0,25% or 0,15% of full scale
- Ex II 1G Ex ia IIC T4
- 2 wire technology with 4...20 mA output
- Interference resistant signals over long distances
- Applications with process temperatures of up to 400°C (750 °F) possible
- Developed in accordance with requirements of the plastics and chemical industry
- G-coating to counteract adhesive materials

Technical specifications

Pressure range	0...17 to 0...2000 bar
Accuracy incl. linearity, hysterisis, and reproducibility in % to full scale	0,15 % , 0,25 % or 0,5 %
Reproducibility in % to full scale	± 0,1 %
Membrane coating	G-Coating
Resolution	16 Bit
Max. pressure overload without influence on operating value	2 x range up to 1000 bar (14,500 psi) 1,5 x pressure range over 1000 bar (14,500 psi)
Bridge resistance	3500 Ohm Wheatstone Bridge
Supply voltage	19...30 V DC
Output signal	4...20 mA
Transmission medium	NTX™ as standard
Process connection	1/2"20 UNF or M18 x 1,5
Calibration point	80 %
Insulation resistance	>0,1 MOhm at 500 VAC
Max. temperature at diaphragm	300 °C NTX (572 °F) 400 °C HG (750 °F)
Max. temperature at terminal head during operation	- 20... +60 °C (4 °F...140 °F)
Zero point deviation against diaphragm temperature changes at the diaphragm % / ° C (% / 1,8 ° F)	± 0,02 bar / °C (± 0,29 psi / °C) *
Zero point deviation against temperature changes at terminal head in % / ° C (% / 1,8 ° F)	± 0,003 %
Ingress protection housing Ingress protection connector	IP 65 / IP 55
Max torque	1/2"20 UNF 30 Nm (22 lbf ft) M18 x 1,5 50 Nm (32 lbf ft)

* With standard diaphragm, transmission medium NTX™ and 1/2"20 UNF.
Subjects to modification.

Product variations (examples)

Flexible capillary
G-Armor version with robust flexible component

Higher protection class
High protection class with cable outlet IP68

Special designs
For example shaft length according to customer specifications

Reliable technology with Hart® protocol

The pressure transmitters of protection type ‘Ex i intrinsically safe’ allow secure signal transmission even in the harshest interference field environments and guarantee problem-free use in all possible applications of the plastics and chemistry sector. The reliable DAIX series is now also available with HART communication.

The HART technology (Highway Addressable Remote Transducer) is very common in process automation.
This communication is based on the existing 4…20 mA power interface, is interference-free and, as an open standard, is available across manufacturers.

Analog power interfaces have been used in industrial measurement and control technology for a long time. Data transmission is possible across longer distances and is largely unaffected by line resistances and electromagnetic interference fields. For this reason, power interfaces are often used in the processing industry for the monitoring and control of chemical and physical processes, usually in larger plants.

Communication in both directions is required in order to test and set up field devices. The power interface can only transmit parameters in one direction, however. The field-tested ”HART Communication“ standard used worldwide offers a solution for this problem.

A sinus-shaped signal alternating between two frequencies is modulated onto the analog power signal, transmitting the logical digital parameters “1“ or “0“. This signal can be created as well as evaluated by the field device and the operating terminal. This way, bidirectional digital data transmission is ensured in addition to the analog power signal.
This offers the user the option to not only read actual parameters from the sensor, but also to write parameters.
A control system equipped with a HART modem or also a portable HART communicator can be used as a communication partner for maintenance personnel. The query of status messages and measured values is performed without interrupting the analog power interface. Scaling and calibration functions can be performed directly in the field.
The uncompromising continued development of the DAIX redefines the market standard for explosion-proof devices and is another perfect example of the Gneuss range of reliable measurement technology products

With analog signal and switch output

Safety Pressure Sensor DAIL

The DAIL fulfils the requirements of EN 1114-1 for overpressure protection of extrusion lines and offers maximum comfort of operation.

The auto-zero function enables calibration directly on the device or from the observation point/controller. On the output side, the melt pressure transmitter provides a switch output in addition to the analog signal which enables switching off the machine in case of overpressure according to EN 13849-1, PL=c.

- Switch output for overpressure protection
- Switch-off pressure freely selectable
- Analog output mA or V
- Performance Level c according to EN13849-1
- TÜV certified
- G-coating to counteract adhesive materials
- Compatible with common OEM sensors
- Longlife design

Technical specifications

Pressure range	0...50 to 0...2000 bar
Accuracy incl. linearity, hysterisis, and reproducibility in % to full scale	0,15 % , 0,25 % or 0,5 %
Reproducibility in % to full scale	± 0,1 %
Membrane coating	G-Coating
Resolution	16 Bit
Max. pressure overload without influence on operating value	2 x range up to 1000 bar (14,500 psi) 1,5 x pressure range over 1000 bar (14,500 psi)
Bridge resistance	3500 Ohm Wheatstone Bridge
Supply voltage	15...32 V DC
Output signal	V oder mA
Transmission medium	NTX™ as standard
Process connection	1/2"20 UNF or M18 x 1,5
Calibration point	80 %
Insulation resistance	>1000 MOhm at 50 V
Max. temperature at diaphragm	300 °C NTX (572 °F) 400 °C HG (750 °F) 500 °C NAK (932 °F)
Max. temperature at terminal head during operation	- 40... +85 °C
Zero point deviation against diaphragm temperature changes at the diaphragm % / ° C (% / 1,8 ° F)	± 0,02 bar / °C *
Zero point deviation against temperature changes at terminal head in % / ° C (% / 1,8 ° F)	± 0,003 %
Ingress protection housing Ingress protection connector	IP 65 / IP 55
Max torque	1/2"20 UNF 30 Nm (22 lbf ft) M18 x 1,5 50 Nm (32 lbf ft)

* With standard diaphragm, transmission medium NTX™ and 1/2"20 UNF.
Subjects to modification.

Product variations (examples)

Auto-zero Function
As an option available with optical auto-zero release in the sensor head

Special diaphragm coating
Special coating options available

Integrated temperature measurement
As an option (DTAIL series)

Protection against pressure overload for extrusion lines

Safety System EPM

- Designed according to EN1114-1
- Two redundant sensors 4…20 mA, to which the same pressure is applied
- Two safety-related analogue inputs
- Self-monitoring
- Two safety-related relay outputs, the emergency stop of the unit
- 4...20 mA signal for pressure evaluation
- Optional Bus interface

Throughout the world, the requirements on plastics and rubber machines with regard to safety protection against over pressure are increasing.

With the Gneuss safety system EPM, the use of stretch bolts, fail safe components, rupture discs or movement sensors can be avoided. Extruders, melt pumps or components which are under pressure can be protected against excess pressure by the EPM safety system, with a duplicated and monitored pressure measurement.

The safety-relevant components of the monitoring system conform to EN ISO 13849-1, with a performance level of “c”. In addition to the pressure monitoring / cut out function, the pressure monitoring system can be augmented with additional safety features such as emergency stop or protection monitoring.

With ceramic isolation

TF-CX Series Temperature Sensor

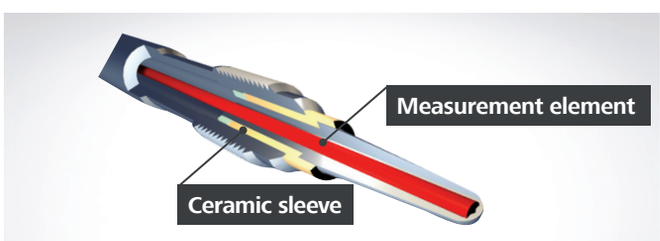
The Gneuss CX Series Temperature Sensors are specially designed for precise temperature measurement of the melt stream.
Their resulting high accuracy is due to the incorporation of the advanced G-Isolate ceramic insulation surrounding the entire measuring element. Commonly influenced by the barrel temperature, the CX series probes with G-Isolate guarantee an accurate reading, independent of the flange or tool location. The design of the CX exceeds the recommended guidelines of the Plastics and Rubber trade association according to EUROMAP 31.

Configuration options

- Thermocouple Type J, L, K or RTD
- 1/2"20 UNF or M 18 x 1,5 process connection
- Special materials for measuring tip (abrasive or corrosive materials)
- Available as transmitter with 0...10 V or 4...20 mA
- Amplifier for Ex-areas (4...20 mA) with BUZ head
- Measuring tip length available from 0 mm (0 inch) (flush) to 25 mm (1 inch)
- G-Isolate ceramic sleeve (illustration)

- Measuring tip isolated with high-performance ceramic
- Highly precise temperature measurement
- Plug connections with gold-plated contacts
- Extremely robust conical measuring element (rheologically optimized)
- Applications up to 500°C (932°F) media temperature
- 100% market compatible
- Conforms to EUROMAP 31

Ceramic insulated measurement tip

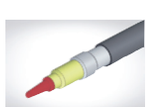


The melt temperature sensors with thermally insulated measurement tip provide the user with a precise and meaningful measurement. Distortion of the measurement value by external or internal heat influences is minimized. The sensor with ceramic insulated measurement tip is therefore particularly recommended for use with thermally sensitive materials due to the authentic measurements which it provides.

Product variations (examples)

EX-version
4...20 m/A Transmitter BUZ head

Cable protection option
Flexible component with G-Armor



Special design TF
With fully ceramic sensor tip

Connector selection
Thermocouple or RTD

All-metal design

TF-MX Series Temperature Sensor

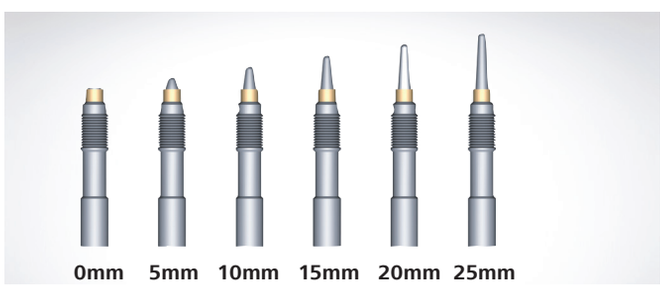
The Gneuss MX Series was developed to measure most melt temperature ranges for all types of plastics with high response. The TF-series temperature sensors are economical, of robust construction, and reliable. The rheological characteristics of most plastic materials were considered during the design process of the Gneuss ROC (Rheologically Optimized Conical) measuring tip, therefore highly viscous media are measured with maximum adhesion. Major advantages regarding the lifespan and reliability of this sensor type in comparison to sword sensors are ensured due to this installation configuration.

Configuration options

- Thermocouple Type J, L, K or RTD
- 1/2" 20 UNF or M 18 x 1,5 process connection
- Special materials for measuring tip (abrasive or corrosive materials)
- Available as transmitter with 0...10 V or 4...20 mA
- Amplifier for ex-areas (4...20 mA) with BUZ head
- Measuring tip length available from 0 mm (0 inch) (flush) to 25 mm (1 inch)

- Robust metal construction
- Special materials for measuring tip
- Plug connections with goldplated contacts
- Rheologically optimized conical tip (ROC)
- Applications up to 500°C (932°F) media temperature
- 100% market compatible
- Maximum melt pressure 2.000 bar (29,000 psi)

Measuring tip length



The measuring tip length is selected according to the polymer melt viscosity and melt channel diameter at the point where the instrument is located.
The length can be selected in 5mm (0.2 inch) steps from 0 mm (0 inch) (flush) to 25 mm (1 inch). The standard design is suitable for melt temperatures of up to 400 °C (1,000 °F), the special Hastelloy design (see above) up to 500 °C (932 °F).
All the tip lengths are available with thermocouples (Fe-CuNi type J or L, NiCr-Ni type K) or resistance sensors PT 100 (2-, 3- or 4- wire).

Product variations (examples)

Special design
AlloyC4 measuring tip

Cable protection option
Flexible component with G-Armor

Connector selection
Thermocouple or RTD

Custom-made designs

Sensors play a central role in the plastics processing industry in guaranteeing a high product quality. In difficult applications, operator-friendly, robust and high-precision sensors are a must.

Food processing

Sensors for the food industry and the animal food industry must fulfil strict requirements. The equipment is regularly washed and therefore the sensors must be protected against the ingress of water. Standard sensors are prone to failure due to wet electronic components.

Gneuss has developed a new, special design of sensor in response to these challenges. Thanks to special manufacturing techniques, these new sensors are perfectly suited for these applications.

Custom-made designs

If requested by our customers, we provide individual solutions, which are tailored to specific applications, special process conditions or difficult places of installation.
We offer pressure transducers with high-resistance Heavy-Duty Design to cope with very difficult process conditions with short excess pressures and pressure peaks or not molten components in the material.

Custom-made sensors are characterised by these Gneuss advantages:

- Short delivery lead times, even for made-to-order designs.
- Compatible with practically all conventional sensors
- Excellent value for money
- One- piece shaft, made in Germany
- Pre-calibrated prior to despatch (200° C)
- Accuracy: < 0,5 % from max. scale value (standard)
- NTX™ Technology – all sensors are mercury free (standard)
- Lower temperature drift than conventional, mercury based systems
- Special diaphragm design for high temperatures and aggressive media
- Safety system EPM for continuous pressure self-monitoring (maximum pressure safety cut out) according to EN1114-1

Wood Plastic Composite processing

The processing of WPC (Wood Plastic Composites) in the extrusion process necessitates a high resistance of the pressure transducers.

The mixture of wood (natural or recycled) and polymers such as PE, PP or PVC leads to a high viscosity and abrasiveness, factors which in turn often result in mechanical defects of the sensor membrane after a short time. In many cases, the membrane is more or less ground off by the abrasive melt, so that the sensor does not function any more.

Gneuss has developed a special technology for the transducer diaphragm, wich offers far longer service life than conventional sensors.

Accessories

Insert bushing adaptors

The insert bush adaptor for the installation of measurement sensors facilitates and simplifies the installation of measurement sensors and helps to reduce costs. There is no need for special tools, a standard thread-cutting tool M24 or M16 is sufficient to make the drillings..

- Precision made, with hardened surfaces. Designed to avoid damage to the sensor tip and membrane.
- A seizure of the thread, leading to a destruction of the sensor, is practically avoided.
- Damage to the pressure transducer drilling means that only the insert bush needs to be replaced.
- The reduction bush allows the introduction of a sensor with ½"20UNF-2A thread in an existing sensor drilling with M18 x 1,5 thread.

Connecting cables for pressure and temperature

Gneuss standard connecting cables have a cable socket on one side for connection to the sensor. All standard connecting cables can be supplied from stock with the following lengths: 3; 5; 7,5 and 10 m. Special configurations of the measurement cables can be supplied on request and for special requirements.

Connector plugs for pressure and temperature

Gneuss pressure transducers and temperature sensors are connected via high-quality, sturdy and reliable plug connections. Gold contacts, electromagnetic compatibility (EMC) and safe locking technology are standard.

Bush fitting tool

Bore cleaning tool

Blanking plugs

Heatable pressure calibrator PPS1210

Transportable testing unit for quick and easy testing of melt pressure transducers at operating temperature.
As the sensors are usually not operated at room temperature, the calibrator makes it possible to check the transducer's functions under realistic operating conditions.

- Measuring range 0-700 bar
- Maximum pressure 770 bar
- Accuracy class: +/- 0,05 % FS
- Heatable up to approx. 250°C
- Temperature control of the pressure port heating with integrated PID controller
- Supply voltage 230 VAC
- Dimensions (length x width x height) approx. 470 x 170 x 280
- Weight approx. 7.2 kg

Pressure transducer testing unit CCS 1000

In the rough-and-tumble of production conditions, it is quite common for melt pressure transducers to become damaged, but without this damage having an adverse effect on the accuracy of the unit. This can simply and quickly be checked by using our testing unit. In cases of doubt, it enables inaccuracies in the melt pressure measurement to be excluded. Further, this testing unit can be used as certified testing means in accordance with the ISO 9001 standard. The adaptor supplied with the unit makes it possible to test all pressure transducers with thread 1/2-2OUNF-2A and M18x1,5.

- Measuring range: 0-1000 bar
- Max. pressure: 1300 bar
- Accuracy: 0,25 %
- Pressure creation: adaptable with spider
- Fine pressure adjusting: side-hand wheel
- Screw-in thread: 1/2"2OUNF 2A and M18 x 1,5
- Dimensions: 290 x 190 x 110 mm
- Weight: 8 kg
- Acceptance certificate 3.1B

Digital indicators / Display units

DMV / TMV

The DMV 4000 series provides accurate measurement of melt pressure sensor output and extremely user-friendly. The 4000 has up to three configurable limit value contacts and offers the choice of displaying three different values. Other outputs include optional analog current or voltage outputs, including RS 485 interface for serial communication. Easy programming via 5 keys simplifies the operating procedures and the password protected access control ensures a tamper-proof operation of the instrument.

DMV Series

- 1 mV/V…4 mV/V input sensitivity
- Automatic measuring value calibration
- Limit value contacts
- Analogue output

TMV Series

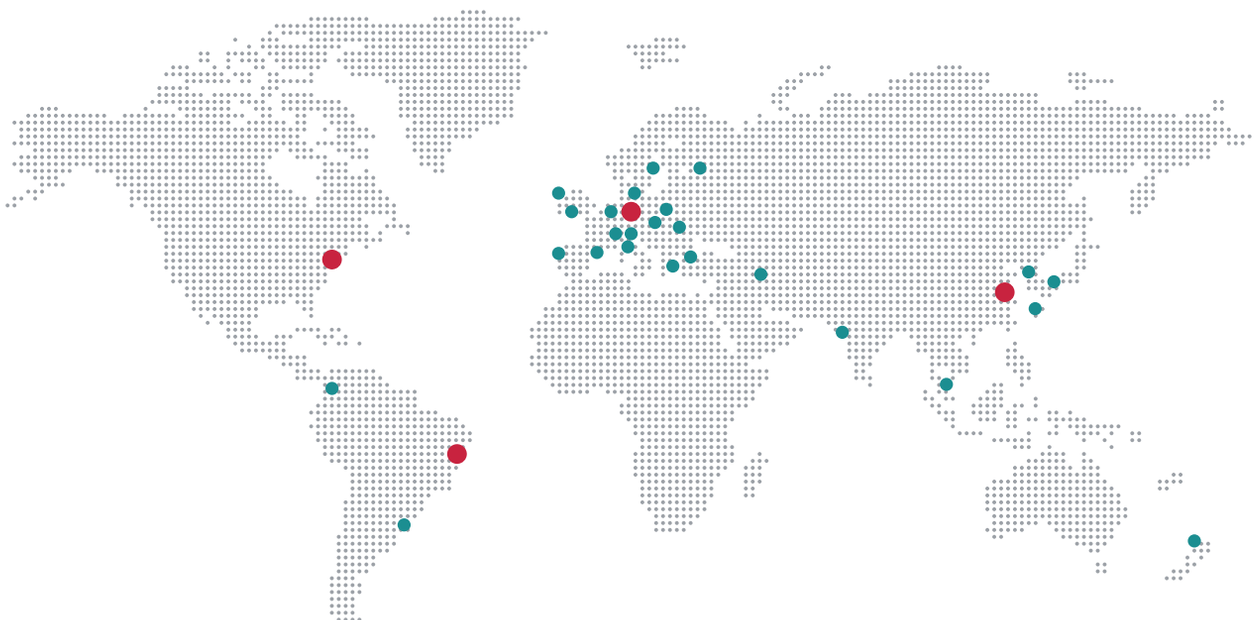
- All common thermocouples and PT100 resistance temperature sensor
- Limit value contacts
- Analogue output

Configuration options

- 96.0 x 48.0 (1/8 DIN) cabinet cut out
  Power supply 100…230 VAC
- Up to 3 limit values
- Sensor / cable failure monitoring
- 5 digit display green or red (configurable)
- Serial interface RS 485 Modbus
- Peak value memory
- Operator panel IP 65
- Operating (ambient) temperature 0...50 °C
  0...20 mA, 4...20 mA or 0...10 V
- Decimal point

Our Locations

Always somewhere near you



Based in Bad Oeynhausen, Germany, Gneuss is committed to the expectations of products “made in Germany” while serving our customers world-wide. A technology center for processing technical trials and development work is available at Gneuss´ headquarters in Bad Oeynhausen. Additional pilot lines are available for trials at our subsidiary, Gneuss Inc. in the USA and at our cooperation partner, SysTech in Japan.

Subsidiary

Gneuss, Inc.
10820-G Independence Pointe Parkway
Matthews, NC 28105, USA
Phone: +1.704.841.7251
Fax: +1.704.841.7254
gneuss.usa@gneuss.com

Headquarters

Gneuß Kunststofftechnik GmbH
Moenichhusen 42
32549 Bad Oeynhausen, Germany
Phone: +49.5731.5307.0
Fax: +49.5731.5307.77
gneuss@gneuss.com

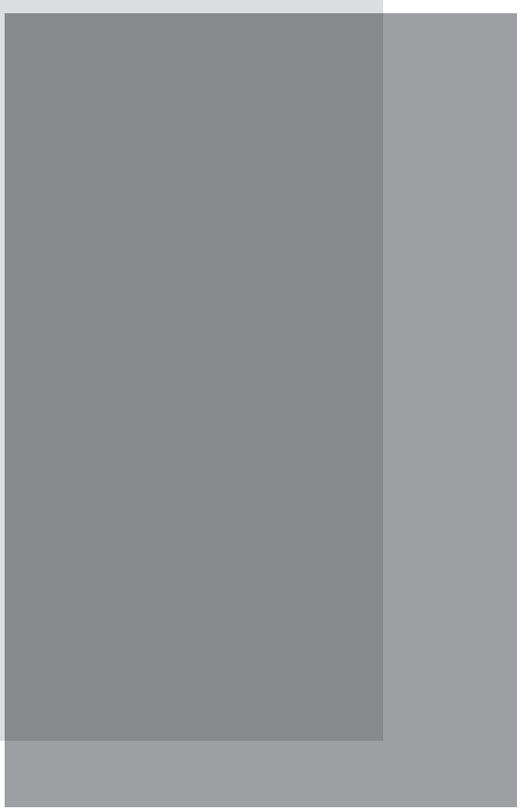
Sales and Service Center

Office Latin America / Gneuss Ltda.
Al. Rio Negro, 1084 - cj 114
06454-000 - Barueri - SP, Brasil
Phone: +55.11.4191.1449
Fax: +55.11.4191.1449
gneuss.southamerica@gneuss.com

Gneuss Office Shanghai
Shanghai Gejun Machinery Co., Ltd.
Room 202, No. 104, Lane 3885
Qixin Road, Minhang
CN 201105 Shanghai
Phone: +86.139.1682.8631
gneuss.china@gneuss.com

Gneuss Kunststofftechnik GmbH
Moenichhusen 42
32549 Bad Oeynhausen, Germany
Phone: +49 5731 5307 0
Fax: +49 5731 5307 77
gneuss@gneuss.com

Service hotline
+49 700 463877 24



www.gneuss.com