

**GEMÜ**



**Measurement and display units**



### Various methods of measuring for different areas of application

In addition to process valves, GEMÜ provides an entire series of measurement and display units for valves. The current product range includes various flowmeters as well as a selection of technologies for temperature, pressure and level measurement systems. The portfolio is complimented by display units for sensor systems.

For flow measurement systems, GEMÜ offers a variety of designs: variable area flowmeters, flow transmitters, magnetically inductive flowmeters and ultrasonic flowmeters.

All measurement devices have in common that they are characterised with a robust construction and are simple to integrate into a system.



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# Flow measurement systems

A measuring float is lifted by the volumetric flow in a conical metering tube until equilibrium is achieved between the weight of the measuring float and the force caused by the flow resistance. The measuring float is lifted higher or lower according to the volume flow rate.

## GEMÜ 800/850

### Features

- Variable area principle
- For corrosive, inert gaseous and liquid media
- Corrosion resistant, robust and high chemical resistance
- Optional electrical limit switches or instrument sensor

### Technical specifications:

<b>Tube material:</b>	Trogamid-TTM, polysulphone, PVC, PVDF
<b>Measuring range:</b>	From 2 l/h to 20,000 l/h for liquids and 0.2 Nm <sup>3</sup> /h to 450.0 Nm <sup>3</sup> /h for air
<b>Available sizes:</b>	DN 10 to 65
<b>Connection:</b>	By union ends with insert



## GEMÜ 840

### Features

- Part flow principle
- Consists of main flow unit, orifice plate, part flow unit, manual diaphragm valves
- For corrosive and inert liquid media
- Robust, high chemical resistance
- Optional electrical limit switches or instrument sensor

### Technical specifications:

<b>Housing material :</b>	PVC-U, grey, PP
<b>Measuring range:</b>	From 3,000 l/h to 50,000 l/h
<b>Available sizes:</b>	DN 65
<b>Connection:</b>	By solvent cement or welded spigots



## GEMÜ 1250/1251/1252/1256/1257

### Limit switches

#### Features

- Suitable for GEMÜ flowmeters with magnetic float
- Simple mounting and setting by clamping to flowmeter
- Reed contacts are actuated by the magnet in the float

#### Technical specifications:

GEMÜ 1250: With bistable reed contact with SPDT (Single Pole Double Throw) contact

GEMÜ 1251 - 1257: With bistable reed contact for Min or Max limit value

Option: ATEX 



## GEMÜ 1270-1273

### Instrument sensors

#### Features

- Suitable for GEMÜ flowmeters with magnetic float
- For continuous flow monitoring
- Simple mounting and setting by clamping to flowmeter
- Reed contacts in a chain of resistors are actuated by the magnet in the float

#### Technical specifications:

GEMÜ 1270/1271: The signal reading is effected via voltage divider (0-10kOhm)

GEMÜ 1272/1273: The signal reading is effected via integrated 2-wire measuring transducer (4-20mA)

GEMÜ 1270/1271: ATEX optional 



# Flow measurement systems

## Turbine flow transmitters

These can be used either as pure measuring turbines or as totalizers or batch controllers for measuring ranges from 120 to 25,000 l/h. The measuring turbines provide various electrical output signals for further processing.

### GEMÜ 3020

#### Flow transmitter (Turbine)

##### Features

- For inert and corrosive aqueous liquids
- Connection by metric or imperial union ends with insert

##### Technical specifications:

Turbine material :	PVDF
Turbine body material:	PVDF / PVC-U, grey
Available sizes:	DN 25 / DN 50
Measuring range:	DN 25: 120 to 3600 l/h DN 50: 500 to 25000 l/h
Power supply:	24 V DC
Frequency output:	24 V PNP
Current output:	4 to 20 mA

### GEMÜ 3021

#### Flow transmitter, totalizer or batch controller

##### Features

- Measuring transducer with totalizer or batch controller
- For inert and corrosive aqueous liquids
- Electronic system enables adjustment to operating conditions
- Signal inputs for PLC or switching signals
- Connection by metric or imperial union ends with insert

##### Technical specifications:

Turbine material :	PVDF
Turbine body material:	PVDF / PVC-U, grey
Available sizes:	DN 25 / DN 50
Measuring range:	DN 25: 120 to 7200 l/h DN 50: 500 to 25000 l/h
Power supply:	24 V DC
Outputs depending on type:	Frequency 24 V PNP; current 0/4 to 20 mA; 2 x relay



## Magnetically inductive flowmeter

The GEMÜ 3030 mFlow flowmeter operates according to the magnetically inductive measurement principle. It is suitable for electrically conductive media and enables exact measurement of flow velocities and flow rates of inert and corrosive liquids. The simple mechanical construction of the GEMÜ 3030 mFlow magnetically inductive immersion-type flowmeter offers quick and easy installation. The device has a backlit display and is operated via a membrane key-pad at the front of the housing. Electrical connections are at the rear.

### GEMÜ 3030 mFlow

#### Features

- Same measurement device can be used for different nominal sizes
- No moving parts in the medium
- Access rights via different user levels
- Integrated Web browser capability
- Simple commissioning and versatile operating facilities
  - Fascia keys
  - PC connection with Internet browser
  - Fieldbus interfaces e.g. Profibus-DP

#### Technical specifications:

Available sizes:	DN 25 to 300
Temperature range:	0 to 135 °C
Connection:	By various fittings
Temperature sensor:	optional
Power supply:	24 V DC
Measuring range:	0 to 4 m/s, 0 to 10 m/s
Output signals:	0 / 4 to 20 mA; pulse; relay
Fieldbus interface:	Profibus DP
Conductivity of medium:	$\geq 20 \mu\text{S/cm}$



# Flow measurement systems

## Ultrasonic flowmeter

The GEMÜ C38 SonicLine is an ultrasonic flowmeter operating according to the phase difference method. The metering tube is made of PFA and can be directly integrated into the piping system by standard flare unions. The medium only contacts the metering tube. The electronic housing is made of PP. The connection cables are PTFE encapsulated.

### GEMÜ C38 SonicLine

#### Features

- High accuracy and repeatability
- Suitable for very dynamic processes (dosing time < 1s)
- Integrated dosing function
- No moving parts in the metering tube and thus subject to low wear
- All media wetted parts are made of PFA (HP quality)
- Excellent chemical resistance
- Minimal deadleg
- Empty pipe signal
- Compact design

#### Technical specifications:

Nominal size :	3/8" to 1"
Measuring range:	0.03 to 120 l/min
Connection:	Flare connection
Tube material:	PFA-HP
Power supply:	24 V DC
Media temperature:	0 to 80 °C
Accuracy:	± 1 % of measuring range
Output signals:	4 to 20 mA; pulse





# Pressure measurement systems

The GEMÜ 3140 pressure transducer or pressure switch is available in various different designs for the pressure measurement systems area. The HydraLine® series (GEMÜ C30, C31, C32) comprises pressure transmitters and pressure measurement devices for high purity media applications.

## GEMÜ 3140

### Pressure transducer/switch

#### Features

- Rotatable LED display and IO-Link interface, depending on version
- Suitable for highly viscous, contaminated and corrosive media
- Appropriate in-line housing optionally available
- ATEX and SIL2 design optionally available
- Accuracy: 0.5% FSO (in accordance with IEC 60770)
- Optional installation position
- Ceramic sensor

#### Technical specifications:

Operating pressure*:	0 to 40 bar
Media temperature*:	-40 to 125 °C
Housing materials:	Housing made from 1.4404 stainless steel or plastic (PVDF)
Mechanical connection:	G $\frac{1}{4}$ " or G $\frac{1}{2}$ " male thread
Output signals:	0–20 mA, 4–20 mA, 0–10 V
Switching outputs:	PNP or NPN

\* Depending on version and/or operating parameters



# Pressure measurement systems

## GEMÜ C30 Hydra-Gauge

### Pressure gauge

#### Features

- Especially suitable for pressure measurement of ultra high purity chemicals
- All media wetted parts are made of PFA/PTFE (HP quality)
- Pressure transmission by double diaphragm technology
- Pressure gauge can be rotated through 360°
- Optionally with electrical switching contacts
- REACH / ROHS compliant
- Other certificates on request (e.g. FDA compliance)

#### Technical specifications:

Nominal size :	¼" to 1¼" (In-Line, Dead-End)
Operating pressure:	0 to 6 bar
Connection:	Flare connection, NPT
Valve body material:	PFA-HP, PTFE
Diaphragm material	PFA
Media temperature:	5 to 60 °C
Accuracy:	± 1,6 % of measuring range or scale end value



## GEMÜ C31 Hydra-Sensor Pressure transmitter

### Features

- Especially suitable for pressure measurement of ultra high purity chemicals
- All media wetted parts are made of PFA/PTFE (HP quality)
- Pressure transmission by double diaphragm technology
- Pressure transmitter can be rotated through 360°
- Protection class IP 65 or IP 67 (depending on version)
- REACH / ROHS compliant
- Other certificates on request (e.g. FDA compliance)

### Technical specifications:

Nominal size :	¼" to 1¼" (In-Line, Dead-End)
Operating pressure:	0 to 6 bar
Connection:	Flare connection, NPT
Valve body material:	PFA-HP, PTFE
Diaphragm material	PFA
Power supply:	10 to 30 V DC
Media temperature:	5 to 60 °C
Accuracy:	≤0.5 % of measuring span
Output signals:	4 to 20 mA
Option:	Digital display



## GEMÜ C32 Hydra-Dry Measuring transducer with ceramic sensor

### Features

- Especially suitable for pressure measurement of ultra high purity chemicals
- All media wetted parts are made of PFA/PTFE (HP quality)
- The pressure is transmitted by a ceramic sensor
- The sensor is isolated from the process by a double diaphragm system
- Protection class IP 67
- REACH / ROHS compliant
- Other certificates on request (e.g. FDA compliance)

### Technical specifications:

Nominal size:	¼" to 1¼" (In-Line, Dead-End)
Operating pressure:	0 to 6 bar
Connection:	Flare connection, NPT
Valve body material:	PFA-HP, PTFE
Diaphragm material	PFA
Power supply:	12 to 30 V DC
Media temperature:	0 to 60 °C
Accuracy:	≤0.5 % of measuring span
Output signals:	4 to 20 mA
Option:	Digital display with switch points



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 GEMÜ manufacturing site

 GEMÜ subsidiary

# Temperature measurement systems

## Temperature transducer and temperature measurement device with integrated display

The GEMÜ 3220 temperature transducer converts the physical variable temperature proportionally into an electrical signal. The process connection is configured as standard with male threads to DIN 3852 in sizes G 1/2 and G 3/4. The electrical connection is via a plug complying with DIN EN 175301-803 form A. The installation position is optional. After screwing in the connecting element, the upper part of the housing can be rotated up to  $\pm 180^\circ$  to the required position by loosening the fastening screws. Media wetted components are made of PVDF or ceramics, the housing is made of ABS and the seal of FPM.

### GEMÜ 3220

#### Features

- High accuracy and repeatability
- No moving parts and thus subject to low wear

#### Technical specifications:

Measuring range:	0 to 100 °C
Sensor material:	Ceramics (option encapsulated in PVDF)
Connecting element:	PVDF
Version:	2-wire transducer or 4-wire temperature measurement device with display
Current output:	0/4 to 20 mA
Power supply:	24 V DC
Process connection:	Dependent on the version: G 1/2" or G 3/4" thread



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