

Digital Display Units

Construction

The panel mountable displays are available as types ZA (3 1/2 digit) and ZB, ZP, ZT, ZF (4 1/2 digit). The red LED display is 14 mm high. The display value is set using the 2-point method by applying the relevant measurement signals and setting the required display value.

In types ZA and ZB the setting potentiometer is located behind the protective front foil.

Types ZP, ZT and ZF can be digitally programmed at the front using a disconnectable keypad.

Features

- Suitable for use in the engineering industry, laboratory equipment and process plants

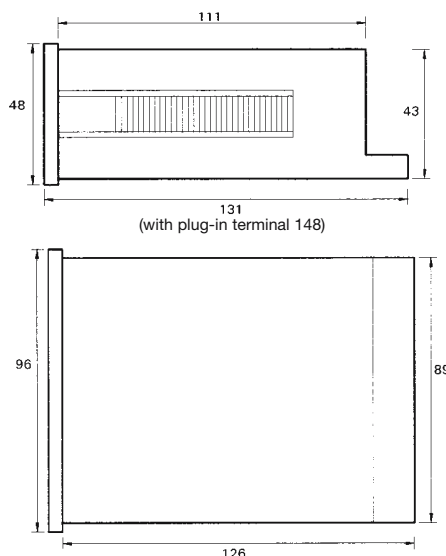
Type	Display	Display programmable	Output
1275 000 ZA	3 1/2 digit	no	-
1275 000 ZB	4 1/2 digit	no	-
1275 000 ZP	4 1/2 digit	yes	Relay, Analogue (option)
1275 000 ZT	4 1/2 digit	no (due to sensor type)	Relay, Analogue (option)
1275 000 ZF	4 1/2 digit	yes	Relay, Analogue (option)

Type 1275 is used to display measurement values of e.g. pressure, temperature, flow and level measurement devices.

Advantages

- High accuracy (0.1%)
- Optional scaling factor and text display
- Options:
 - IP 65 for front
 - Sensor supply
 - Analogue outputs
 - Serial interface
 - Selection of up to 4 limiting values possible

Housing dimensions (all designs) (mm)



Standard display
Digital display unit ZA/ZB



Multifunction display
Programmable digital display unit
ZP, ZT, ZF

Technical data - Types ZA and ZB (Standard display)

Dimensions

Housing	96 x 48 x 134 mm including terminal
Mounting recess	92 ^{+0.8} x 45 ^{+0.6} mm
Fixing	lockable fixing clasp shape B (DIN 43835)
Housing material	PC/ABS - Blend black
Weight	approx. 0.35 kg
Connection	Terminals up to 2.5 mm ² at the back

Input

Measuring range	0-10 V, 0-20 mA, 4-20 mA Selection of all ranges via terminal
Calibration	The display value can be freely adjusted using rough and precision potentiometer
Input resistance	Measuring range 0-10 V: Ri=55 kΩ Meas. range 0/4-20 mA: Ri=100 Ω

Output

Sensor supply	24 VDC/50 mA, 10 VDC/20 mA
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Power supply unit

Supply voltage	230/115 VAC ± 10%, 50/60 Hz 24 VDC (18-30V)
Consumption	approx. 2 VA, (max. 5 VA)

Accuracy

Resolution	1275/000/ZA: ± 1999 digit 1275/000/ZB: ± 19999 digit
Measurement error	± 0.1% of measured value ± 1 digit
Temp. coefficient	50 ppm/K
Meas. principle	Dual slope integration

Ambient conditions

Operating temperature	0° to +60°C
Storage temperature	-20° to +80°C

Indication

Display	7 segment LED, red, 14 mm high 1275/000/ZA: 3½ digit 1275/000/ZB: 4½ digit
Overrange	Display flashes
Decimal place	Pluggable from the front by a jumper
Blanking	Suppression of digit with lowest value
Measurement rate	0.25 or 1 sec selectable

Order data - Types ZA and ZB (basic design)

Resolution

	Code
ZA 3½ digit	A
ZB 4½ digit	B

Protection class

	Code
IP 40	1
IP 65 (Front only)	2

Power supply/Mains frequency

	Code
24 VDC	24 DC
115 VAC / 50/60 Hz	115 50/60
230 VAC / 50/60 Hz	230 50/60

Sensor supply

	Code
Without	0
24 VDC	1
10 VDC	2

Text field

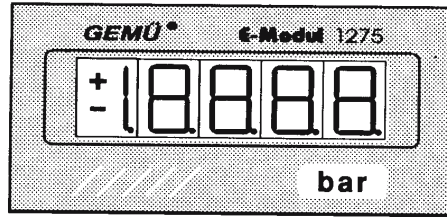
%, l/min, l/h, m³/h, gal/h, gal/min, bar, psi, °C, °F
or as per customer request

Note: Please select 10 VDC sensor supply for passive instrument sensors such as GEMÜ type 1270/1271 and 910.

Order example

Order example	1275	000	Z	A	2	1	24 DC	
Type	1275							
		000						
			Z					
Resolution (Code)				A				
Sensor supply (Code)					2			
Protection class (Code)						1		
Power supply/Mains frequency (Code)							24 DC	
Text field (additional text specification)								

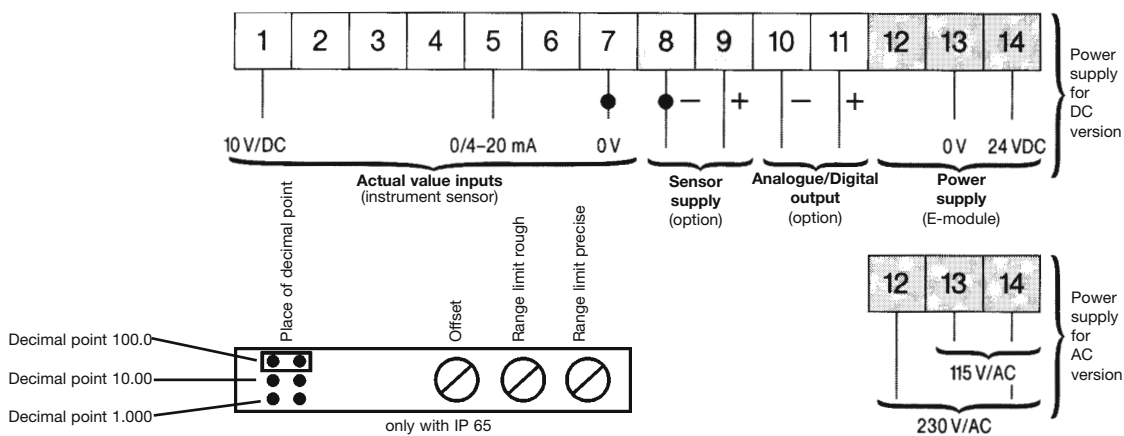
Panel recess (All designs) (mm)



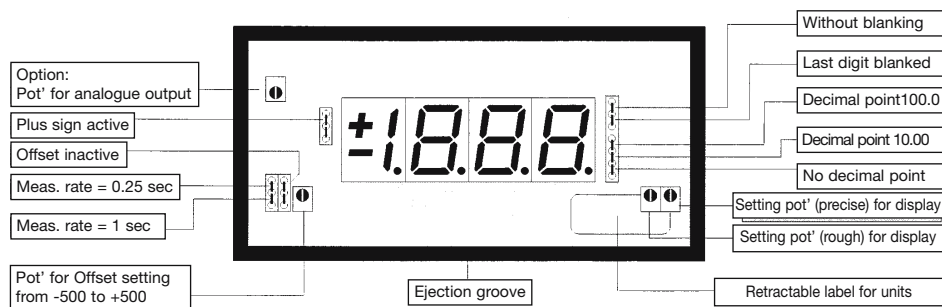
CE mark

For unrestricted use of the unit according to the electromagnetic compatibility directive 89/336/EEC the measurement wires must be laid shielded. The shield has to be connected on one side.

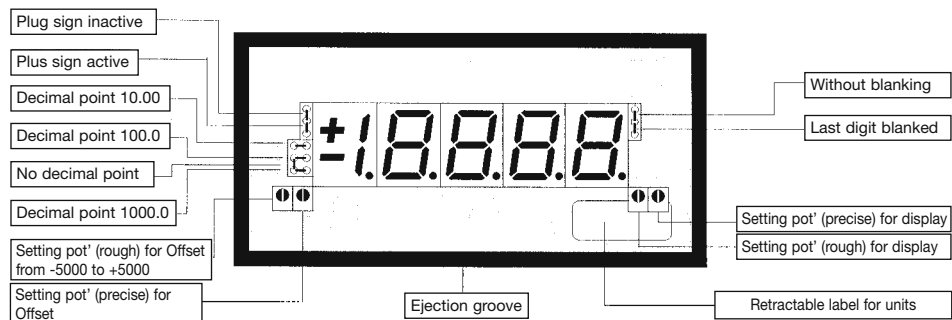
Connection diagram - Types ZA/ZB



Operation - Type ZA



Operation - Type ZB



Technical data - Type ZP (Multifunction Display Unit)

Dimensions

Housing	96 x 48 x 134 mm including terminal
Mounting recess	92 ^{+0.8} x 45 ^{+0.6} mm
Fixing	lockable fixing clasp shape B (DIN 43835)
Housing material	PC/ABS - Blend black
Weight	approx. 0.45 kg
Connection	Terminals up to 2.5 mm ² at the back

Accuracy

Resolution	± 19999 digit
Measurement error	± 0.1% of measured value, ± 0.05% of end value
Temp. coefficient	50 ppm/K
Meas. principle	Dual slope integration

Input

Measuring range	0-10 V, 0-20 mA, 4-20 mA Selection of all ranges via terminal
Calibration	The display value can be freely adjusted using the keys
Input resistance	Measuring range 0-10 V: Ri=100 kΩ Meas. range 0/4-20 mA: Ri=100 Ω

Power supply unit

Supply voltage	230/115 VAC ± 10% 24 VDC (18-30V) 24 VDC (20-30 V) galv. isolated
Consumption	approx. 2 VA, (max. 5 VA)

Output

Sensor supply	24 VDC/50 mA, 10 VDC/20 mA
Relay outputs	Loads 230 VAC/2A -120 VDC/0.5A
Analogue output	0-10 VDC (12 bit) 0-20 mA (12 bit, load resistor ≤500 Ω) 4-20 mA (12 bit), load resistor ≤500 Ω With AC and DC supply (galv. isolated) the analogue output is galv. isolated from the meas. input.
Digital output	RS 232-9600 Baud, no parity 8 data bit, 1 stop bit ASCII output of display value at display rate

Indication

Display	7 segment LED, red, 14 mm high 4½ digit = display 19999 digit
Overrange	4 transverse bars appear
Display rate	can be adjusted from 0.1 to 10 sec

Ambient conditions

Operating temperature	0 to +60°C
Storage temperature	-20 to +80°C

Order data - Type ZP (Multifunction Display Unit)

Resolution	Code
4½ digit ZP	P

Connection	Code
Without plug-in terminal	0
With plug-in terminal	1

Sensor supply	Code
Without	0
10 VDC with power supply 24 VDC	3
10 VDC with power supply 115/230 VAC	4
10 VDC with power supply 24 VDC galv. isolated	5
24 VDC with power supply 24 VDC	6
24 VDC with power supply 115/230 VAC	7
24 VDC with power supply 24 VDC galv. isolated	8

Switching contacts	Code
2 relays (SPDT, single pole double throw)	2
4 relays (SPDT, single pole double throw)	4

Protection class	Code
IP 40	1
IP 65 (Front only)	2

Power supply	Code
24 VDC	24 DC
24 VDC galv. isolated	24 DCGAL
115 VAC 50/60Hz	115 50/60
230 VAC 50/60 Hz	230 50/60
Others upon request	

Analogue output	Code
Without	0
0-10 VDC	1
0-20 mA	2
4-20 mA	3
0-10 VDC with 24 VDC galv. isolated	4
0-20 mA with 24 VDC galv. isolated	5
4-20 mA with 24 VDC galv. isolated	6

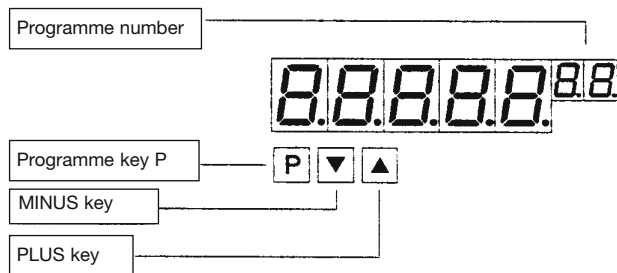
Serial interface	Code
Without	0
RS 232	1

Text field
%, l/min, l/h, m³/h, gal/h, gal/min, bar, psi, °C, °F or as per customer request

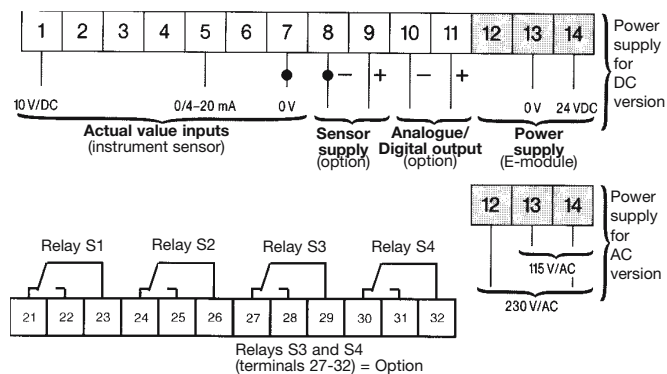
Order example	1275	000	Z	P	3	1	0	0	1	2	24 DC	
Type	1275											
			Z									
Resolution (Code)				P								
Sensor supply (Code)					3							
Protection class (Code)						1						
Analogue output (Code)							0					
Serial interface (Code)								0				
Connection (Code)									1			
Switching contacts (Code)										2		
Power supply (Code)											24 DC	
Text field (additional text specification)												

Type ZP (Multifunction Display Unit)

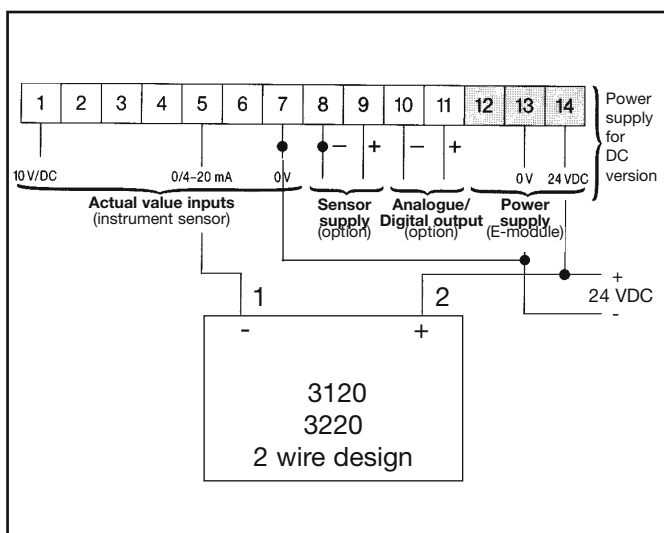
Operation - Type ZP



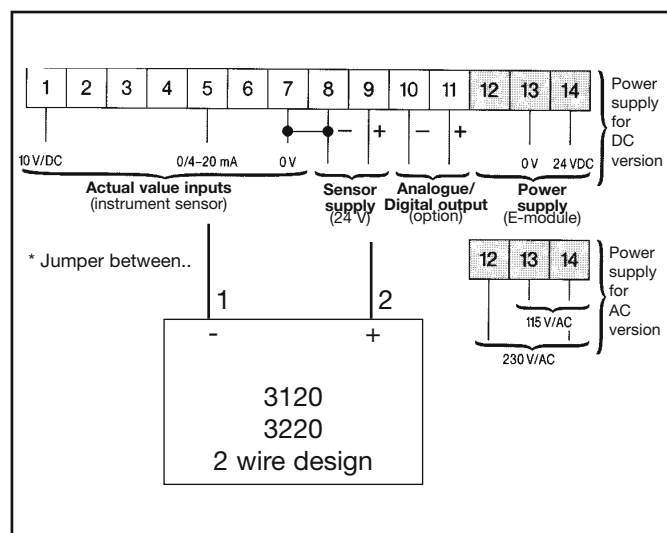
Connection diagram- Type ZP



Application example - ZA/ZB/ZP



Application example - ZA/ZB/ZP



Type ZP (Multifunction Display Unit)

Programme table- Type ZP

PN	Function	Remark	Display
1	Input of the required display value for the upper effective range limit	Apply measurement variable(acknowledge with P and minus key) e.g. 10 V meas. input = range limit 3600	0 to ± 19999
2	Input of display value offset, zero point	Apply measurement variable(acknowledge with P and minus key) e.g. 4 mA meas. input = starting value 0	0 to ± 19999
3	Decimal point setting: Press the plus key until the required decimal point appears	Measured value is displayed	
4	Input of display time (factory setting 1 second)	Measurement time = 0.25 seconds, 4 mean values for 1 second display time	0.1 to 10 s
5	Input of range limit for analogue output	Option	0 to ± 19999
6	Input of offset for analogue output	Option	0 to ± 19999
7	Memory query for Min value	In operating mode <i>Normal measured value display</i> : Press ↑ ↓ simultaneously = to clear the memory Press ↑ = to read MAX memory Press ↓ = to read MIN memory	0 to 19999
8	Memory query for Max value	In operating mode <i>Normal measured value display</i> : Press ↑ ↓ simultaneously = to clear the memory Press ↑ = to read MAX memory Press ↓ = to read MIN memory	0 to 19999
9	Input of calibration type Parameters 1-3 are presettings as commissioning help with error < 2 %	Calibration by 2 point calibration with external measuring signal, see setting, Method for most exact calibration Precalibrated to 0-10 V input signal Precalibrated to 0-20 A input signal Precalibrated to 4-20 A input signal	0 1 2 3

Switching point table (S1 - S4) - Type ZP

S1 PN	S2 PN	S3 PN	S4 PN	Function	Display
61	66	71	76	Switching point	0 to ± 19999
62	67	72	77	Hysteresis/Dead zone	0 to 19999
63	68	73	78	Bias current/Max. Working current/Min. Bias current with display on PN Working current with display on PN	0 1 2 3
64	69	74	79	Time delay for hysteresis	0.0 bis 10.0 s

Note

Bias current principle

Actual value < Min/Max → Relay activated

Working current principle

Actual value < Min/Max → Relay deactivated

Technical data - Type ZT (Digital Temperature Measuring Device)

Dimensions

Housing	96 x 48 x 134 mm including terminal
Mounting recess	92 ^{+0.8} x 45 ^{+0.6} mm
Fixing	lockable fixing clasp shape B (DIN 43835)
Housing material	PC/ABS - Blend black
Weight	approx. 0.45 kg
Connection	Terminals up to 2.5 mm ² at the back

Accuracy

Resolution	<i>PT 100</i> : ± 0.1°C <i>Thermo element</i> : ± 1°C
Measurement error	<i>PT 100</i> : ± 0.1% of measured value ±0.05% of end value <i>Thermoelement</i> : ≤ 1°C
Temp. coefficient	50 ppm/K
Meas. principle	Dual slope integration

Input (for PT 100 devices)

PT 100	2 wire 3 wire 4 wire connection
Measuring range	-100.0 to +600.0°C
Resolution	0.1°C
Linearisation	acc. to DIN 43760
Sensor current	approx. 1 mA

Power supply unit

Supply voltage	230/115 VAC ± 10% 24 VDC (18-32V) 24 VDC (12-36 V) galv. isolated
Consumption	approx. 2 VA, (max. 5 VA)

Input (for Thermo Element devices)

L Fe-CuNi (DIN)	-100 to + 900°C
J Fe-CuNi (American)	-200 to +1200°C
K NiCr-Ni	-50 to +1750°C
S Pt10Rh-Pt	-50 to +1750°C
N NiCrSi-NiSi	-250 to +1300°C

Indication

Display	7 segment LED, red, 14 mm high 4½ digit = display 19999 digit
Overrange	4 transverse bars appear
Display rate	can be adjusted from 0.1 to 10 sec

Output

Relay outputs	max. 4 switch-over contacts load 230 VAC/2A - 120 VDC/0.5A
Analogue output	0-10 VDC (12 bit) 0-20 mA (12 bit, load resistor ≤500 Ω) 4-20 mA (12 bit), load resistor ≤500 Ω With AC and DC supply (galv. isolated) the analogue output is galv. isolated from the meas. input.
Digital output	RS 232-9600 Baud, no parity, 8 data bit, 1 stop bit

Ambient conditions

Operating temperature	0 to +60°C
Storage temperature	-20 to +80°C

Order data - Type ZT (Digital Temperature Measuring Device)

Resolution	Code
4 1/2 digit ZT	T

Connection	Code
Without plug-in terminal	0
With plug-in terminal	1

Connection of temperature sensor	Code
PT 100 2 wire connection	1
PT 100 3 wire connection	2
PT 100 4 wire connection	3
Connection of thermo element type L, J, K, S, N	4

Protection class	Code
IP 40	1
IP 65 (Front only)	2

Analogue output	Code
Without	0
0-10 VDC	1
0-20 mA	2
4-20 mA	3
0-10 VDC with 24 VDC galv. isolated	4
0-20 mA with 24 VDC galv. isolated	5
4-20 mA with 24 VDC galv. isolated	6

Switching contacts	Code
2 relays (SPDT, single pole double throw)	2
4 relays (SPDT, single pole double throw)	4

Power supply	Code
24 VDC	24 DC
24 VDC galv. isolated	24 DCGALV
115 VAC 50/60Hz	115 50/60
230 VAC 50/60 Hz	230 50/60
Others upon request	

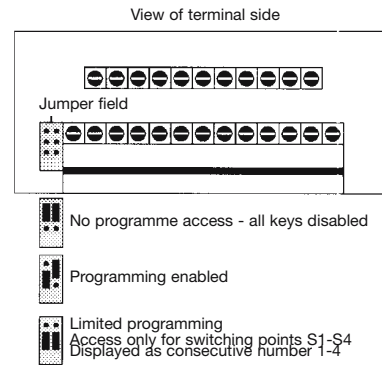
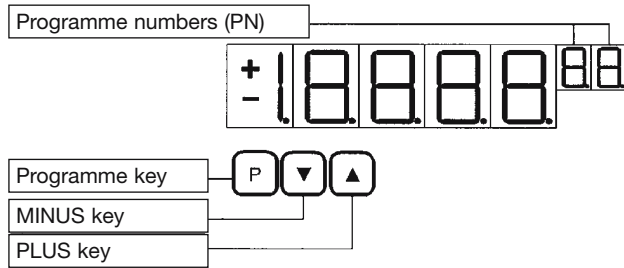
Serial interface	Code
Without	0
RS 232	1

Text field
°C, °F or as per customer request

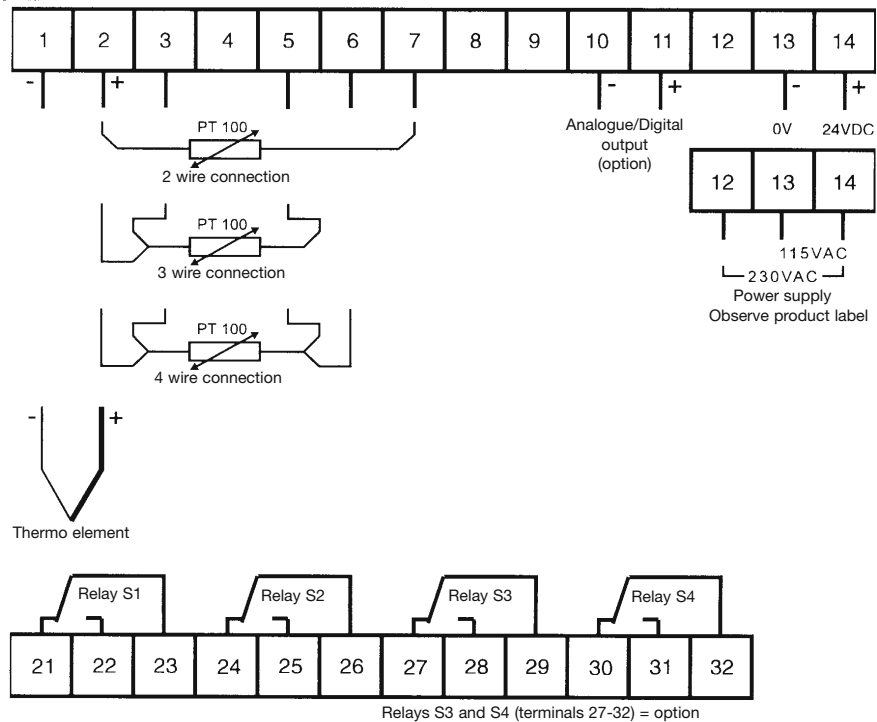
Order example	1275	000	Z	T	2	1	0	0	0	2	24 DC	
Type	1275											
			Z									
Resolution (Code)				T								
Connection of temperature sensor (Code)					2							
Protection class (Code)						1						
Analogue output (Code)							0					
Serial interface (Code)								0				
Connection (Code)									0			
Switching contacts (Code)										2		
Power supply (Code)											24 DC	
Text field (additional text specification)												

Type ZT (Temperature Measuring Device)

Operation - Type ZT



Terminal assignment - Type ZT



Each device is designed for 1 measuring sensor and the type of connection selected from the order data.

Type ZT (Temperature Measuring Device)

Programme table - Type ZT

PN	Function	Remark	Display
2	Sensor and wire adjustment	Temperature is displayed	0 to $\pm$ 19999
3	For device type for resistance sensor:	Selection °C/°F	0/1
	For device type for thermo sensor:		
	Selection of thermo element: Fe-CuNi (DIN)	Selection °C: L Selection °F: L	°C: 01 °F: 11
	Fe-CuNi (Americ.)	J J	02 12
	NiCr-Ni	K K	03 13
	Pt10Rh-Pt	S S	04 14
	NiCrSi-NiSi	N N	05 15
4	Input of display time (Factory setting 1 second)	Measurement time = 0.25 seconds 4 mean values for 1 second display time	0.1 to 10 s
5	Input of range limit for analogue output	Option	0 to $\pm$ 19999
6	Input of offset for analogue input	Option	0 to $\pm$ 19999

Switching point table (S1 - S4) - Type ZT

S1 PN	S2 PN	S3 PN	S4 PN	Function	Display
61	66	71	76	Switching point	0 to $\pm$ 19999
62	67	72	77	Hysteresis/Dead zone	0 to 19999
63	68	73	78	Bias current/Max.	0
				Working current/Min.	1
				Bias current with display on PN	2
				Working current with display on PN	3
64	69	74	79	Time delay for hysteresis	0.0 to 10.0 s

Bias current principle

Actual value < Min/Max → Relay activated

Working current principle

Actual value < Min/Max → Relay deactivated

Technical data - Type ZF (Frequency Measuring Device)

Dimensions

Housing	96 x 48 x 134 mm including terminal
Mounting recess	92 ^{+0.8} x 45 ^{+0.6} mm
Fixing	lockable fast fixing by means of plastic clamps for wall thickness up to 50 mm
Housing material	PC/ABS - Blend, black
Weight	approx. 0.45 kg
Connection	Terminals up to 2.5 mm ² at the back

Accuracy

Resolution	1 digit $\cong$ 1 Hz; (Option: 0.01 Hz)
Measurem. error	$\pm$ 0.04% of input frequency
Temp. coefficient	50 ppm/K
Meas. principle	Frequency/Pulse width measurement

Input

Instrument sensor	Namur, 3 wire proximity switch, impulse input High/Low level: > 7.5V/< 4.5V
Input resistance	Ri at 10 V=55 K Ω
Input frequency	1 Hz to 65535 Hz (Option: 0.01-1 Hz)

Power supply unit

Supply voltage	230/115 VAC $\pm$ 10% (50-60 Hz) 24 VDC (18-30 V) galv. isolated
Consumption	approx. 2 VA (max. 5 VA)

Output

Sensor supply	24 VDC/50 mA - 10 VDC/20 mA
Relay output	Load 230 VAC/2A - 120 VDC/0.5A
Analogue output	0-10 VDC (12 bit) 0-20 mA (12 bit), load resistor $\leq$ 500 Ω 4-20 mA (12 bit), load resistor $\leq$ 500 Ω
<i>With AC and DC supply (galv. isolated) the analogue output is galvanically isolated from the measurement input!</i>	
Digital output	RS 232-9600 Baud, no parity, 8 data bit, 1 stop bit

Indication

Display	7 segment LED, red, 14 mm high 5 digit= display 65536 digit
Overrange	4 transverse bars appear
Display rate	can be adjusted from 0.1 to 10.0 sec

Ambient conditions

Operating temperature	0 to +60°C
Storage temperature	-20 to +80°C

Order data - Type ZF (Frequency Measuring Device)

Resolution	Code
4 1/2 digit ZF	F

Connection	Code
Without	0
With plug-in terminal	1

Sensor supply	Code
Without	0
24 VDC	1
10 VDC	2

Protection class	Code
IP 40	1
IP 65 (Front only)	2

Switching contacts	Code
2 relays (SPDT, single pole double throw)	2
4 relays (SPDT, single pole double throw)	4

Analogue output	Code
Without	0
0-10 VDC	1
0-20 mA	2
4-20 mA	3
0-10 VDC with 24 VDC galv. isolated	4
0-20 mA with 24 VDC galv. isolated	5
4-20 mA with 24 VDC galv. isolated	6

Power supply	Code
24 VDC	24 DC
24 VDC galv. isolated	24 DCGALV
115 VAC 50/60Hz	115 50/60
230 VAC 50/60 Hz	230 50/60
Others upon request	

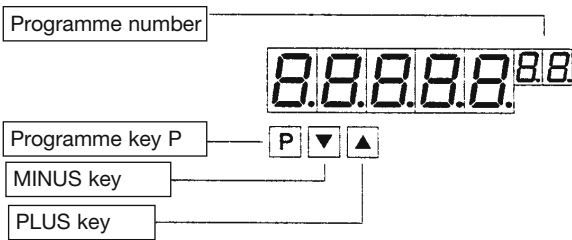
Serial interface	Code
Without	0
RS 232	1

Text field
Hz, U/min or as per customer request

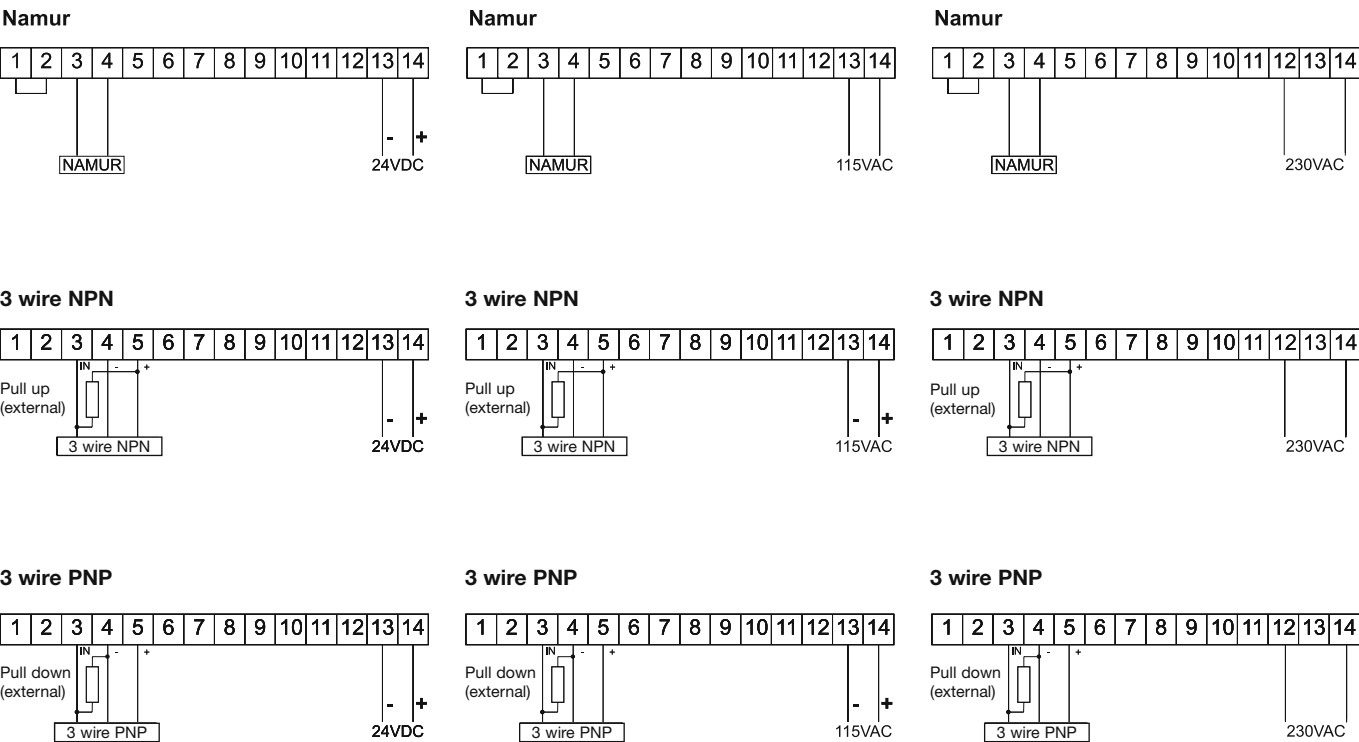
Order example	1275	000	Z	F	1	1	0	0	0	2	24 DC	
Type	1275		Z	F	1	1	0	0	0	2	24 DC	
Resolution (Code)				F	1							
Sensor supply (Code)					1							
Protection class (Code)						1						
Analogue output (Code)							0					
Serial interface (Code)								0				
Connection (Code)									0			
Switching contacts (Code)										2		
Power supply (Code)											24 DC	
Text field (additional text specification)												

Type ZF (Frequency Measurement Device)

Operation - Type ZF



Terminal assignment - Type ZF



Type ZF (Frequency Measurement Device)

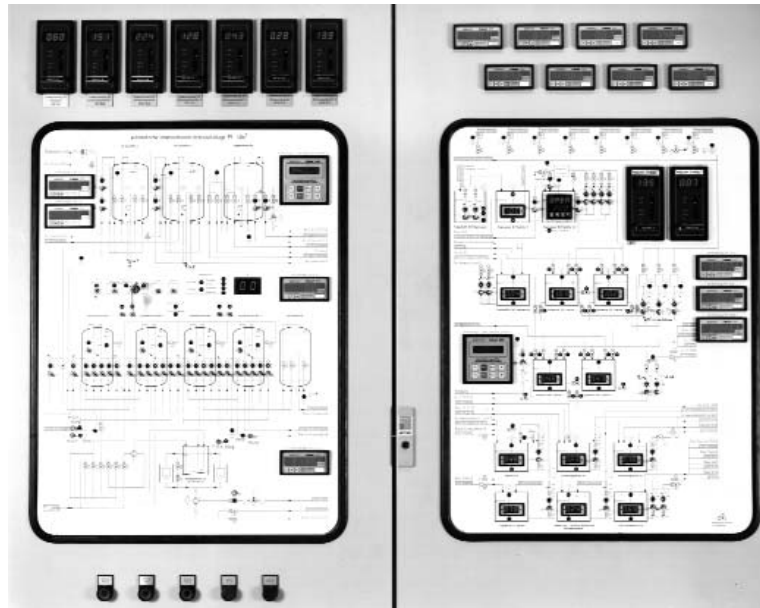
Programme table - Type ZF

PN	Function	Remark	Display
1	Input of required display value	Decimal point ignored	1 - 32767
2	Decimal point of display value: Press ▲ until required decimal point appears	Merely static, is not considered in the calculation	
3	Input of input frequency	Input in Hz, decimal point ignored	1 - 65535
4	Decimal point for input frequency	Decimal point used in the calculation	
5	Input of range limit for analogue output	Option	1 - 65535
6	Input of offset for analogue output	Option	1 - 65535
7	Input of period	Option	1 - 100 sec
8	Input of display time		0.1 - 10 sec
9	Input of time basis for frequency measurement	(set to one second at the factory)	1 - 10 sec

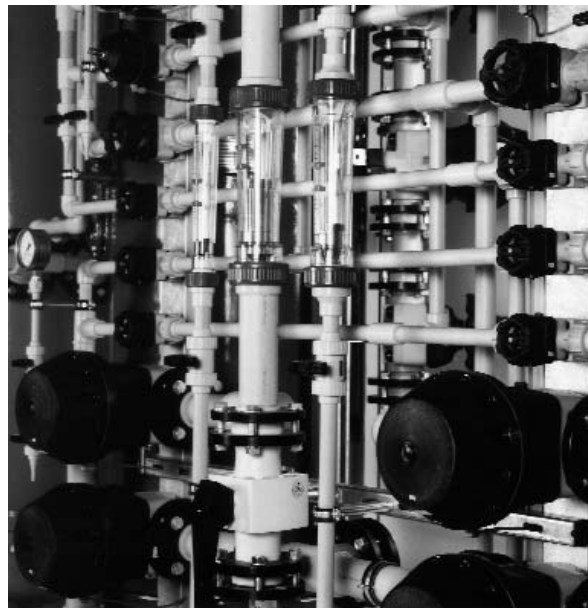
Switching point table (S1 - S4) - Type ZF

S1 PN	S2 PN	S3 PN	S4 PN	Function	Display
61	66	71	76	Switching point	0 - 65535
62	67	72	77	Hysteresis/Dead zone	0 - 65535
63	68	73	78	Bias current/Max. Working current/Min. Bias current with display on PN Working current with display on PN	0 1 2 3
64	69	74	79	Time delay for hysteresis	0.0 to 10.0 s

Application examples



Multifunction display unit for display of sensor signals, pressure, differential pressure temperature and volumetric flow



Multifunction display unit for display of volumetric flow via GEMÜ flowmeter type 800 and instrument sensor type 1270

Further measurement devices, accessories and other products see our Product Range catalogue and Price List.
Contact GEMÜ.



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AND CONTROL SYSTEMS