

Construction

The digital display units are available as types M11 (4-digit) and M21, M31 (5-digit). The red LED display is 14 mm high. The digital display units can be programmed at the front using a disconnectable keypad. The installation depth varies from 38... 139 mm dependent on the version. Operation and programming is made using the easy to understand menu guidance.

Features

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

Advantages

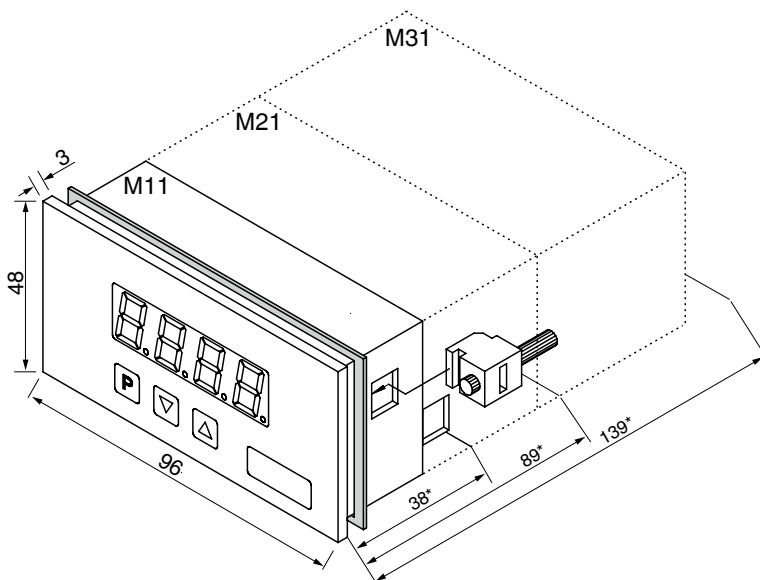
- High accuracy (0.1%)
- Freely scalable and text display
- Options:
 - Sensor supply
 - Analogue outputs
 - RS 232 interface
 - Selection of up to 4 limiting values possible

	M11	M21	M31
Installation depth	38 mm	89 mm	139 mm
Display	-1999...9999	-19999...99999	-19999...99999
Input	0...10 V 0/4...20 mA	0...10 V 0/4...20 mA	0...10 V 0/4...20 mA frequency
Interface	Without	Without	RS 232
Sensor supply	Without	10 V DC, 24 V DC	10 V DC, 24 V DC
Analogue output	Without	Without	0...10 V 0/4...20 mA
Switching outputs	Without	2-relay	2/4-relay
Totalizer	Without	yes	yes



Basic version
Digital display unit M21

Housing dimensions [mm]



*Installation depth incl. terminal

Technical data

General information

Dimensions	
Housing M11	96 x 48 x 38 mm incl. terminal
Housing M21	96 x 48 x 89 mm incl. terminal
Housing M31	96 x 48 x 139 mm incl. terminal
Mounting recess	92 ^{+0.8} x 45 ^{+0.6} mm
Fixing	Screw element for panel thickness up to 3 mm
Material	
Housing	PC Polycarbonate, black
Seal	EPDM, 65 shore, black
Protection class	at the front IP65, at the rear IP00
Weight	
M11	approx. 100 g
M21	approx. 200 g
M31	approx. 350 g
Connection	
	Plug-in terminal; cross section of wire 2.5 mm ²
Directives	
Safety regulation	DIN 61326
EMC directive	DIN 61010
CE label	Conformity to 89/336/EEC

Ambient conditions

Working temperature	0 to + 50 °C
Storage temperature	-20 to + 80 °C

Display

Display M11	4-digit
Display M21	5-digit
Display M31	5-digit
Digit height	14 mm
Segment colour	Red
Display range M11	-1999 to 9999
Display range M21	-19999 to 99999
Display range M31	-19999 to 99999
Limiting values	Optical, display flashes
Ovrange	Horizontal bar at top
Underrange	Horizontal bar at bottom
Display time/measurement time	0.1 to 10.0 seconds

Electrical data

Power supply / power consumption

M11	24 V DC +/- 10 % (max. 1 VA) 230 V AC +/- 10 % (max. 6 VA)
M21	24 V DC +/- 10 % (max. 1 VA) 230 V AC +/- 10 % (max. 6 VA)
M31	24 V DC +/- 10 % (max. 4 VA) 230 V AC +/- 10 % (max. 10 VA)

Input DC voltage M11

Measuring ranges	0...10 V DC; 0/4...20 mA
Measuring span	-12...12 V; -22...24 mA
Input resistance	Ri ~100 kΩ (0...10 V DC) Ri ~100 Ω (0/4...20 mA)
Measurement error	0.1% of measuring range ±1 digit
Temperature drift	100 ppm/K
Measurement time	0.1...10.0 seconds
Measurement principle	V/F conversion
Resolution	approx. 18 bit at 1s measurement time

Electrical data

Input DC voltage M21

Measuring ranges	0...10 V DC; 0/4...20 mA
Measuring span	-12...12 V; -22...24 mA
Input resistance	Ri ~ 100 kΩ (0...10 V DC) Ri ~ 100 Ω (0/4...20 mA)
Measurement error	0.1% of measuring range ±1 digit
Temperature drift	100 ppm/K
Measurement time	0.1...10.0 seconds
Measurement principle	V/F conversion
Resolution	approx. 18 bit at 1s measurement time
Input frequency M21	
Signal	Pulse input, TTL, Namur, 3-wire proximity switches PNP/NPN
Input resistance	Ri at 24 V / 4 kΩ High/Low level > 10 V / < 6 V High/Low TTL level > 4.6 V / < 1.9 V
Input frequency	0.01 Hz selectable up to 999.99 kHz
Measurement error	0.005% of measuring range
Output M21	
Relay	Change-over contact 250 V AC / 2 A, 30 V DC / 2 A
Switching cycles	0.5 x 10 ⁵ at max. contact load 5 x 10 ⁶ mechanical Separation to DIN EN50178 characteristic values to DIN EN60255
Sensor supply	24 V DC / 50 mA 10 V DC / 20 mA

Input DC voltage M31

Measuring ranges	0...10 V DC; 0/4...20 mA
Measuring span	-12...12 V; -22...24 mA
Input resistance	Ri ~ 200 kΩ (0...10 V DC) Ri ~ 100 Ω (0/4...20 mA)
Measurement error	0.1 % of measuring range ±1 digit
Temperature drift	100 ppm/K
Measurement time	0.1...10.0 seconds
Measurement principle	V/F conversion
Resolution	approx. 18 bit at 1s measurement time
Input frequency M31	
Signal	Pulse input, TTL, Namur, 3-wire proximity switches PNP/NPN
Input resistance	Ri at 24 V / 4 kΩ High/Low level >10 V / < 6 V High/Low TTLlevel > 4.6 V / < 1.9V
Input frequency	0.01 Hz selectable up to 999.99 kHz
Measurement error	0.005 % of measuring range
Output M31	
Relay	Change-over contact 250 V AC/5 A AC, 30 V DC / 5 A DC
Switching cycles	30 x 10 ³ at max. contact load 10 x 10 ⁶ mechanical Separation to DIN EN50178 characteristic values to DIN EN60255
Analogue output	0...10 V DC / load ≥ 10 kΩ; 0/4...20 mA / load ≤ 500 Ω (16 Bit)
Sensor supply	24 V DC / 50 mA; 10 V DC / 20 mA
Interface	
Protocol	Modbus with ASCII-protocol
RS232	9.600 baud, no parity, 8 DataBit, 1 StopBit
Cable length	max. 3 m

Order data - Basic type M11

Basic type	Code
M11	M11

Measuring input	Code
DC voltage / Direct current (DC)	1

Design	Code
Analogue	VR

Supply voltage	Code
230 V AC	5
24 V DC	7

Number of digits	Code
4-digit	4B

Protection class	Code
Front IP65, rear IP00	7

Interface	Code
Without	0

Switch points	Code
Without	0

Sensor supply	Code
Without	0

Version	Code
B	B

Analogue output	Code
Without	0

Order example	1276	000	Z	M11	VR	4B	0	0	0	1	5	7	0	B
Type	1276													
Field bus (code)		000												
Accessory (code)			Z											
Basic type (code)				M11										
Design (code)					VR									
Number of digits (code)						4B								
Interface (code)							0							
Sensor supply (code)								0						
Analogue output (code)									0					
Measuring input (code)										1				
Supply voltage (code)											5			
Protection class (code)												7		
Switch points (code)														0
Version (code)														B

Order data - Basic type M21

Basic type	Code
M21	M21

Design	Code
Analogue (only possible with measuring input 1)	VR
Frequency (only possible with measuring input 7)	FR

Number of digits	Code
5-digit	5B

Interface	Code
RS 232	0

Sensor supply	Code
Without	0
10 V DC, 50 mA	2
24 V DC, 50 mA	3

Analogue output	Code
Without	0

Measuring input	Code
DC voltage / Direct current (DC) (only possible with design VR)	1
Frequency (only possible with design FR)	7

Supply voltage	Code
230 V AC	5
10-30 V DC	6

Protection class	Code
Front IP65, rear IP00	7

Switch points	Code
Without	0
2 relay outputs	2

Version	Code
B	B

Order example	1276	000	Z	M21	VR	5B	0	0	0	1	5	7	0	B
Type	1276													
Field bus (code)		000												
Accessory (code)			Z											
Basic type (code)				M21										
Design (code)					VR									
Number of digits (code)						5B								
Interface (code)							0							
Sensor supply (code)								0						
Analogue output (code)									0					
Measuring input (code)										1				
Supply voltage (code)											5			
Protection class (code)												7		
Switch points (code)													0	
Version (code)														B

Order data - Basic type M31

Basic type	Code
M31	M31

Design	Code
Analogue (only possible with measuring input 1)	VR
Frequency (only possible with measuring input 7)	FR

Number of digits	Code
5-digit	5B

Interface	Code
Without	0
RS 232	3

Sensor supply	Code
Without	0
10 V DC, 30 mA	2
24 V DC, 50 mA	3

Analogue output	Code
Without	0
1 x 0-10 V DC, 0/4-20 mA	X

Measuring input	Code
DC voltage / Direct current (DC) (only possible with design VR)	1
Frequency (only possible with design FR)	7

Supply voltage	Code
10 - 40 V DC	W
100 - 240 V AC	S

Protection class	Code
Front IP65, rear IP00	7

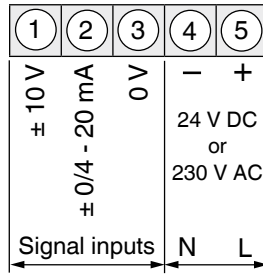
Switch points	Code
Without	0
2 relay outputs	2
4 relay outputs	4

Version	Code
B	B

Order example	1276	000	Z	M31	VR	5B	0	0	0	1	5	7	0	B
Type	1276													
Field bus (code)		000												
Accessory (code)			Z											
Basic type (code)				M31										
Design (code)					VR									
Number of digits (code)						5B								
Interface (code)							0							
Sensor supply (code)								0						
Analogue output (code)									0					
Measuring input (code)										1				
Supply voltage (code)											5			
Protection class (code)												7		
Switch points (code)														0
Version (code)														B

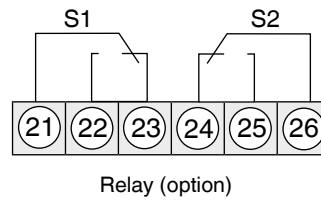
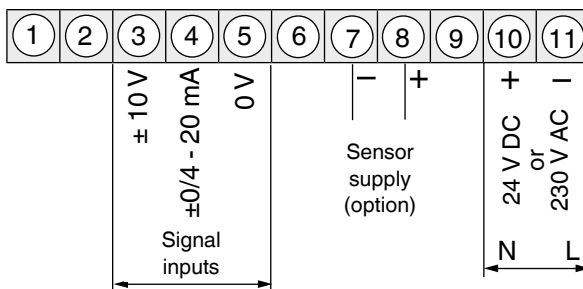
Connection diagrams

Basic type M11

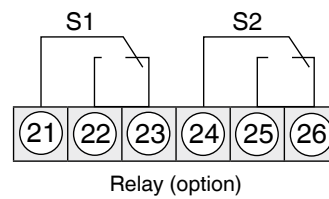
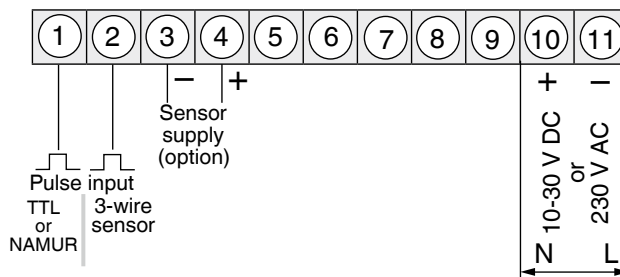


Basic type M21

Design- Analogue (code VR)

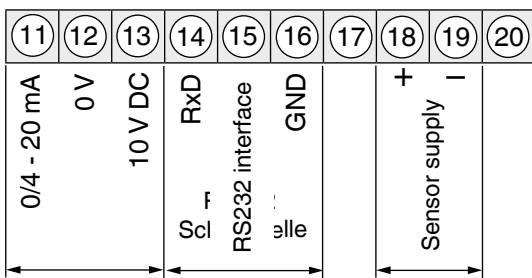
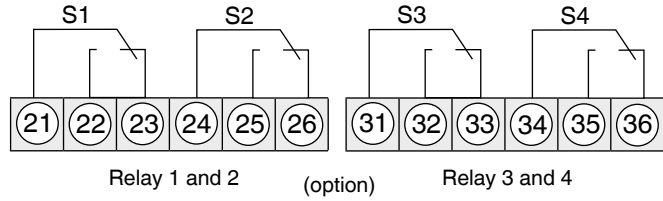
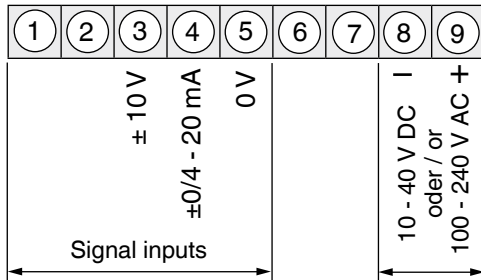


Design - Frequency (code FR)



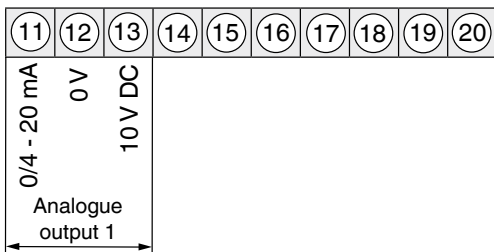
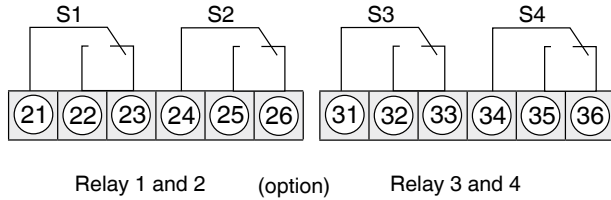
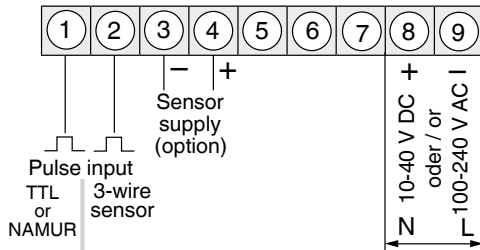
Basic type M31

Design- Analogue (code VR)



(option)

Design - Frequency (code FR)



(option)

Application possibilities

GEMÜ 800/850

Plastic flowmeters,
DN 10 - 65 with

GEMÜ 1272

Instrument sensor for
continuous flow readout
via 4-20 mA output signal
from a 2-wire measuring
transducer



GEMÜ 910

Level transmitter



GEMÜ 3020
Flow transmitter



GEMÜ 3021
Flow transmitter
programmable
measurement device



GEMÜ 3030
Magnetically inductive
flowmeter

For further measurement equipment, accessories and other products, please see our Product Range catalogue and Price List.
Contact GEMÜ.