

# Frequency Converter

AD-FM 255 GVD

AD-FM 255 GVD-O

## Description

The frequency measuring converter AD-FM 255 GVD supplies an initiator or a contact and transforms its impulse sequence to a proportional impressed analogue signal. The output signal is independent from the connected load up to a maximum value. All measuring ranges and outputs can be freely parameterized. This can be carried out via the optional operating panel AD-VarioControl or via the programming software AD-Studio. Input, output and the supply voltage are separated from each other galvanically with high isolation.

## Application

The main area of application is the through-flow measuring at water meters, further applications are energy consumption measuring etc.



## Specific characteristics

- Inputs: NAMUR, contact, open collector, 3-conductor Opto, 24V activ
- Outputs: current and voltage
- Digital output: Relay or semiconductor (pulse or limit value function)
- Operating module VarioControl as an accessory
- Programming via configuration software

## Business data

### Order number

AD-FM 255 GVD	relay output
AD-FM 255 GVD-O	semiconductor output

### Accessory (optional)

Operating module	AD-VarioControl
USB programming adapter	AD-VarioPass /AD-Studio

## Technical specifications

### Digital input

Input	NAMUR (EN 60947-5-6), reed contact, open-collector, 3-lead opto-transmitter or 24V active
Input frequency	min. 0 ... 10 mHz; max. 0 ... 10 kHz
Frequency generator supply	active: 8V / 8mA
Kontaktentprellung (activatable)	40 ms

### Output current

Output range	0 ... 20 mA
Max. burden	400 Ohm
Residual ripple	< 50 µA <sub>ss</sub>

### Output voltage

Output range	0 ... 10 V
Min. burden	10 kOhm
Residual ripple	<20 µV <sub>ss</sub>

### Accuracy

Unit	<0,3%
Temperature influence	<100 ppm / K
Response time	approx. 70 ms

### Relay output

Contact type	potential-free changeover
Max. AC-breaking capacity	250 V AC, 2 A AC, 50Hz
Max. DC-breaking capacity	50 V DC, 2 A DC
Switching operations	
Mechanical	10 <sup>7</sup>
AC: 230V / 2A, cos(phi)=1	6 * 10 <sup>6</sup>
AC: 230V / 2A, cos(phi)=0,4	2 * 10 <sup>6</sup>
DC: 24V / 1A	2 * 10 <sup>6</sup>

### Semiconductor output (optional)

Max switching voltage	30 V DC
Max. switching current	50 mA DC
Voltage drop	< 1 V

### Supply

Voltage range AC	50 ... 253 V AC, 50/60 Hz
Nominal voltage AC	230 V AC
Voltage range DC	20 ... 253 V DC
Nominal voltage DC	24 V DC
Power consumption AC / DC	3,7 VA / 2,1 W

### Housing

Dimensions (WxHxD)	23x110x134 mm
With operating module (bxhxt)	23x110x138 mm
Type of protection	IP 20
Connection method	detachable terminal clamp
Terminals, wire cross section	2,5 mm <sup>2</sup> flex wire / 4 mm <sup>2</sup> one wire
Bolting torque terminals	0,5 Nm
Weight	~ 140 g
Manner of fastening	35 mm DIN rail 35mm

### Environmental conditions

Ambient temperature	-10 ... 50 °C
Storage and transport	-10 ... 70 °C (no condensation)



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## Technical specifications

### EMC

Product family standard <sup>1)</sup> EN 61326-1  
 Emitted interference EN 55011, CISPR11 Cl. B, Gr. 1  
 In a critical EMC environment, shielded encoder cables are recommended.

<sup>1)</sup>During electromagnetic disturbance minor changes in output signal are possible.

### Electrical safety requirements

Product family standard EN 61010-1  
 Overvoltage category II  
 Pollution degree 2

### Galvanic isolation, test voltages

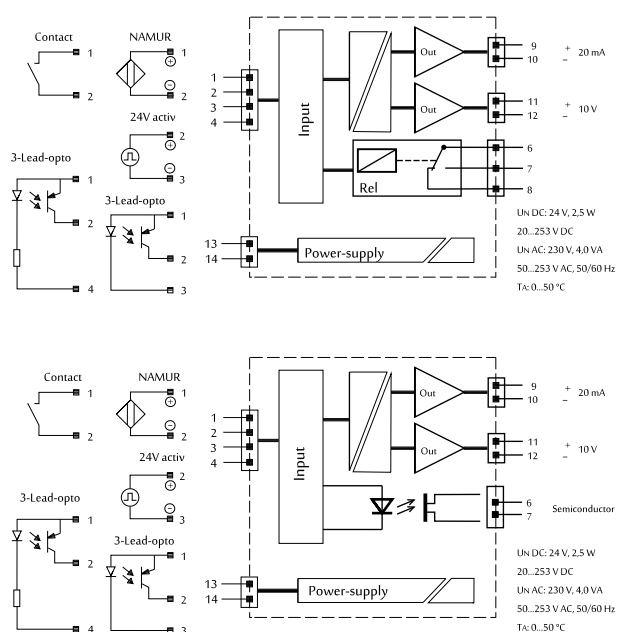
Input/output 2 kV RMS (1 min.)  
 Signal/auxiliary voltage 3 kV RMS (1 min.)

## Display and operating elements

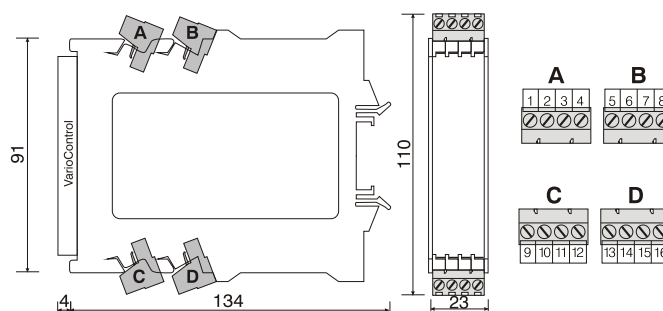


**On:** LED for the power indicator in green  
 lights up - normal operation  
 flashing - signal failure, signal outside range limits  
**In:** LED for input pulse signal  
 0 ... 7 Hz - according to signal  
 >7 Hz - 7 Hz flashing  
**Out:** LED for the relays / semiconductor lights up - relay energized  
**AD-PC:** Communication interface for configuration by a PC  
 Communication interface VarioControl

## Block and wiring diagram



## Dimensions



## Modbus Communication

The optional AD-VarioConnect operating module has an RS-485 interface. The data is transferred via the Modbus RTU protocol, the AD-VarioConnect operating module represents a Modbus slave. Communication takes place according to the master-slave procedure and starts with a request from the master, e.g. from a PLC or a PC. Each bus participant must have a unique address. If a slave detects that its address has been addressed by the master, the slave always sends an answer. The slaves never communicate with each other. They are also not able to start a communication with the master.

The Modbus master can read out the individual registers of the AD-FM 255 GVD via the addresses.

The default standard data format is 19200,e,8,1 with slave address 1. These settings can be changed via the AD-VarioConnect operating module.

Start address	Number of registers	Name	Unit	Data type	read	write
<b>Measured values:</b>						
40801	2	Input frequency	Hz	float	1	0
40803	2	Scaled input		float	1	0
40805	2	Input percentage	%	float	1	0
40901	2	Output signal voltage	V	float	1	1
40903	2	Output signal current	mA	float	1	1