

# NORISPEED - Multifunctional Device for Frequency Input, NORIS Standard Signal



- Wide range of application via flexible parameterisation
- Measurement of up to 2 speed signals with slip and offset measurement
- Direction of rotation detection
- Free programmable speed range
- 2 galvanically isolated norm signal outputs, configurable as:  
0...5 V, 0...10 V, 2...10 V, +/-5 V, +/-10 V, 4...20 mA oder 0...20 mA
- 6 potential-free relays outputs with normally open switch
- Short-circuit- and overvoltage proof outputs
- Operational status LED
- Wire-break monitored inputs
- Integrated display for indication and parameterising
- Robust aluminium housing for mounting rail installation



Multifunctional Device FMN6...



Germanischer Lloyd

(Approvals in preparation)

## Multifunctional Device FMN6...

### General Functionality

The multifunctional device is designed for speed measurement and rotational direction detection with slip- as well as offset measurement and processing the measurement values into electrical norm signals.

### Speed Measurement and Signal Processing

The multifunctional device NORISPEED detects the impuls signal and converts it into a speed proportional analogue signal. The pick-ups are supplied with the internal supply voltage of the multifunctional device. Additionally, specific speed ranges can be monitored and evaluated via digital outputs by a master controller. Therefore the device is equipped with potential free switching outputs for rotational direction, firing speed, nominal speed, over speed and device status. For easy operation NORISPEED has four buttons and a front display. It will be installed on top-hat rail.

By default, the multifunctional device NORISPEED is able to measure up to two speed signals simultaneously and process them as analogue norm signals, configurable as 0...5 V, 0...10 V, 2...10 V, +/-5 V, +/-10 V, 4...20 mA or 0...20 mA. In addition to the standard operation the direction of rotation detection, a slip measurement or an offset measurement is possible. All outputs are galvanically isolated to each other and to the supply voltage.

### Direction of Rotation Detection

NORISPEED can also be used to detect the direction of rotation. Therefore both input channels are used at two radially offset pick-ups. The direction of rotation is indicated by the relay outputs „L“ and „R“. All analogue and digital outputs are available in this mode.

### Slip Measurement

Furthermore NORISPEED can be used for slip measurement. In this mode two speed signals with mechanical relation to each other are measured. The speed deviation can be monitored at the programmable digital outputs.

### Offset Measurement

When used for the offset measurement, the measured speed will be compared with a programmable speed reference and can be monitored as an analogue value (e. g. for accurate monitoring of a defined speed). The scaling of the speed deviation is parameterisable. It is provided on the analog and digital outputs.

### Digital Outputs

The potential free relay outputs (firing speed, rated speed, overspeed) are programmable (NO/NC). The correct function of the device is indicated by the closed status relay. Additionally, the status of the digital outputs is indicated by LEDs.

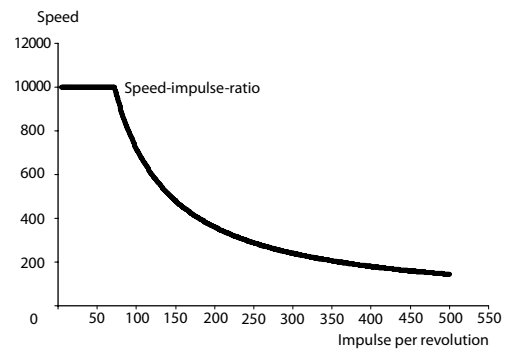
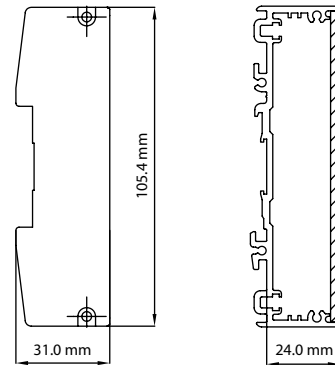
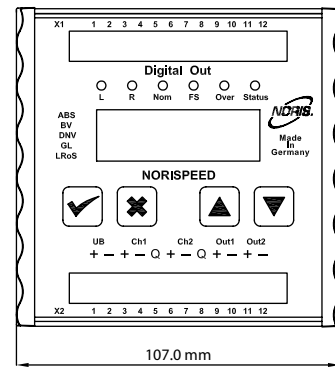
### User Guidance and Visualisation

The parameter setting is realised via device buttons and the visualisation on the integrated display unit. The display shows the measured speed signals as absolute value or as a ratio (in percentage). The status is indicated as plain text with the number of errors that occurred.

## Technical Data

Series FMN6...		
Connection	Supply voltage	$U_{nom} = 24 V_{DC}$ , $U_B = 18...36 V_{DC}$
	Current consumption	Approx. 100 mA @ 24 V <sub>DC</sub>
	Reverse voltage protection	Integrated
	Overvoltage protection	Integrated
	Galvanical isolation	Between sensor input and output signals and operating voltage
Input	Insulation voltage	500 V
	Input signal	Pick-up with PNP, NPN or PushPull output
	Pick-up power supply	Max. 50 mA
	Input resistance	> 8 kΩ
	Threshold	NPN < 8 V, PNP > 16 V
	Measurement range	1 ... 12,000 Hz
	Speed range	1 ... 10,000 rpm (depending on impulses/rotation)
Output	Max. impulse/rotation	4 ... 500 impulses (depending on max. speed)
	Output voltage	-10...+10 V <sub>DC</sub> short circuit proof, overvoltage proof, max. 25 mA
	Output current	0...20 mA Load 0...500 Ω
	Accuracy	14 Bit, < 0.05 %
Environmental influences	Temperature stability	< ±0.05 %
	Output relays	6 relays, max. 30 V <sub>DC</sub> /2 A
	Operating temperature	DIN IEC 60068-2-2, DIN IEC 60068-2-1 Ad: -20°C...+70°C
	Storage temperature	IEC 60068-2: -40°C ... +85°C
	Vibration resistance	DIN IEC 60068-2-6 Fc: ±1.0 mm @ 2...13.2 Hz; ±0.7 g @ 13.2...100 Hz
	Shock resistance	DIN IEC 60068: 15 g/11 ms
	Degree of protection	DIN 60529: IP40
	ESD	IEC 61000-4-2: ± 6 kV/CD; ± 8 kV/AD
	Interference immunity	IEC 61000-6-2, IEC 61000-4-3, -4-4, -4-5, -4-6
	Interference emission	IEC 61000-6-4, CISPR16-1 CISPR16-2
Mech. quantities	Material	Alloy, PVC
	Mounting	Mounting rail TS35
	Installation position	Any
	Weight	200 g
Other	Electrical connection	Plug with spring-type terminals
Approvals	Approvals	CE; UL, ABS, BV, CCS, DnV, GL, LR, RS (approvals in preparation)
	Applied standards	?
	Fire protection class	V0

## Dimensions, Connection, Diagram



## Type Code/Standard Variants

FMN6 - 1 - 11 - K (-) (e. g. FMN6-1-11-K)  
 1 2 3 \* 5 \* \*Pos. 4, 6 not applicable for series FMN6...

1	Device and series
FMN6	Multi functional device with frequency input for NORIS standard signal; model extruded profile L x H = 105 x 24 (40) mounting rail TS35, connection via terminal block
2	Model
1	Length 107 mm, with 2 terminal blocks, 12-pole
3	Inputs and outputs
11	Characteristics as described in the technical data (see above) under "Input" and "Output"
5	Electrical connection
K	Plug with spring type terminals