

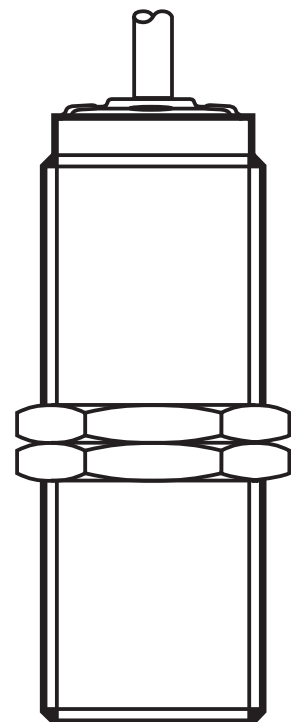


Installation instructions  
Compact speed monitor M30  
DC version

UK

**DI502x**  
**DI52xA**

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# 1 Preliminary note

This document applies to devices of the type "compact speed monitor" (art. no.: DI502x and DI52xA).

This document is intended for specialists. These specialists are people who are qualified by their training and their experience to see risks and to avoid possible hazards that may be caused during operation, installation or maintenance of the device.

Read this document before use to familiarise yourself with operating conditions, installation and operation. Keep this document during the entire duration of use of the device.

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## WARNING

Adhere to the warning notes and safety instructions (→ 2 Safety instructions).

### 1.1 Symbols and warnings used

► Instructions

→ Cross-reference



Information

Supplementary note



Important note

Non-compliance may result in malfunction or interference.

## WARNING

Warning of serious personal injury.

Death or serious irreversible injuries may result

## 2 Safety instructions

A qualified electrician must connect the unit. Observe the national and international regulations for the installation of electrical equipment.

### 2.1 ATEX units (DI52xA)

Remarks for safe use in hazardous areas: operating instructions (Ex protection related part) for speed monitors according to EU directive 2014/34/EU annex VIII (ATEX) group II, equipment category 3D.

If no operating instructions (Ex protection related part) or EC declaration of conformity are supplied with this product in the language of the EU user country, these can be requested from your dealer (see delivery note) or manufacturer (see cover sheet / back).

The ATEX protection is ensured even without mechanical protection.

## 3 Functions and features

The compact, non-contact inductive speed monitor detects when a speed drops below a pre-set value and signals this with a switched output.

### 3.1 Switching function normally open

Transistor output	LED green	
switched (conducting)	on	rotational speed > SP + Hy and during the start-up delay
not switched (non conducting)	off	rotational speed < SP

SP = switch point

Hy = hysteresis

### 3.2 Switching function normally closed

Transistor output	LED green	
not switched (non conducting)	off	rotational speed > SP + Hy and during the start-up delay
switched (conducting)	on	rotational speed < SP

SP = switch point

Hy = hysteresis

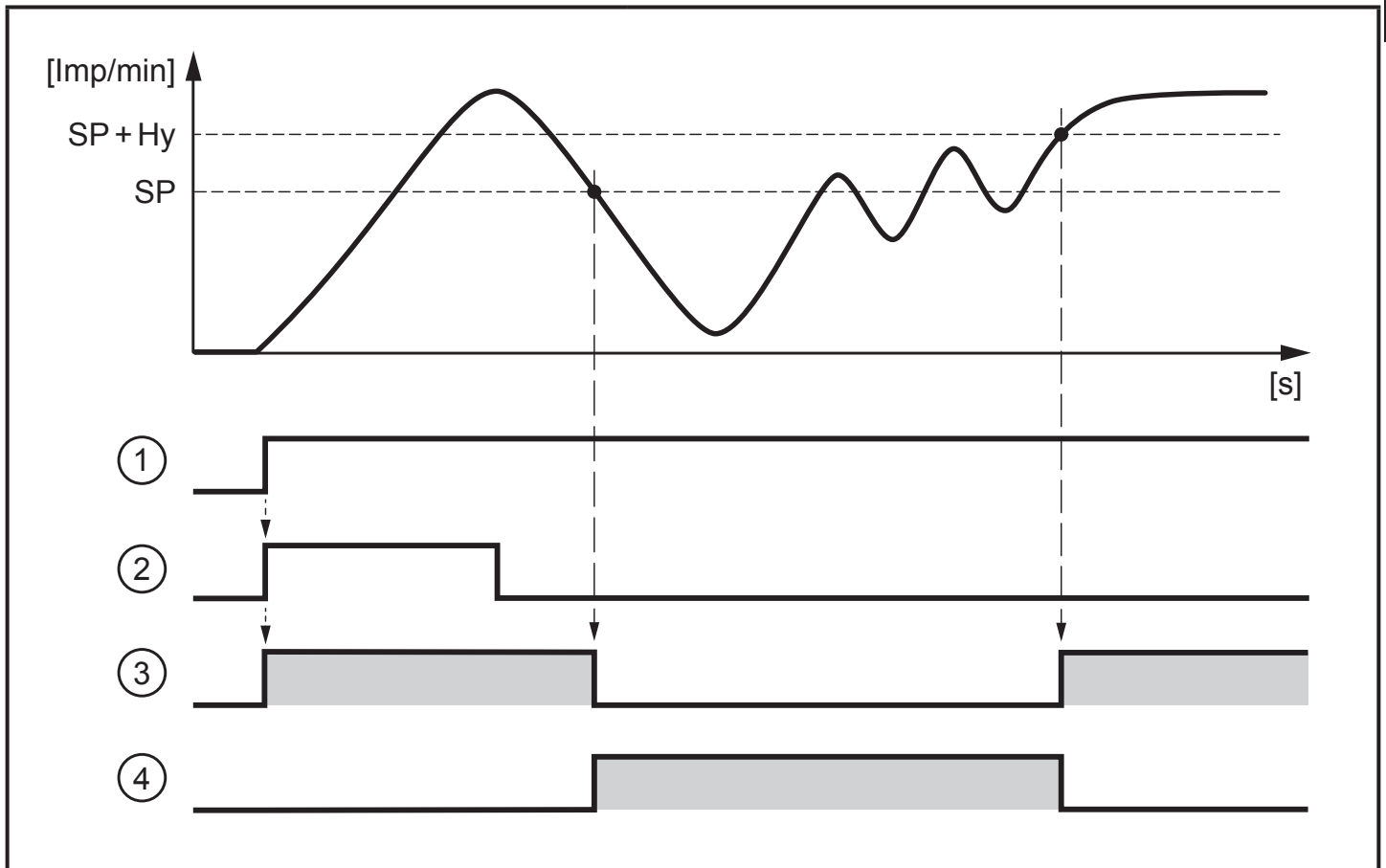
Switching functions of the units (→ 8 Technical data)

### 3.3 Damping

The yellow LED indicates the damping status of the sensor irrespective of either the switching function or the switching status of the transistor output.

Sensor	LED yellow
undamped	off
damped	on

### 3.4 Function diagram



- 1: Voltage supply
  - 2: Start-up delay
  - 3: Switching function normally open
  - 4: Switching function normally closed
- SP = switch point  
Hy = hysteresis

■ = transistor output switched (conducting)



The start-up delay suppresses an error signal as long as the machine is in the process of starting and has not yet reached its minimum speed. After application of the operating voltage the start-up delay is active only once. If the plant is started and stopped frequently, linking the drive and speed monitor power supplies ensures that the start-up delay is effective each time the machine is switched on.

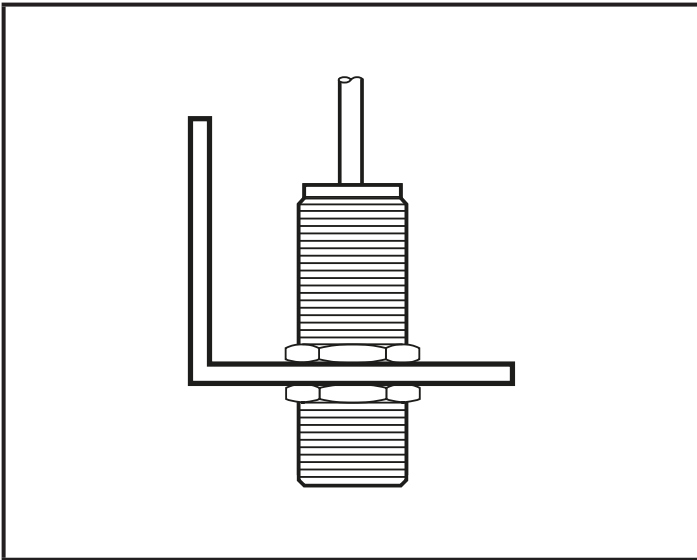
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### 3.5 IO-Link

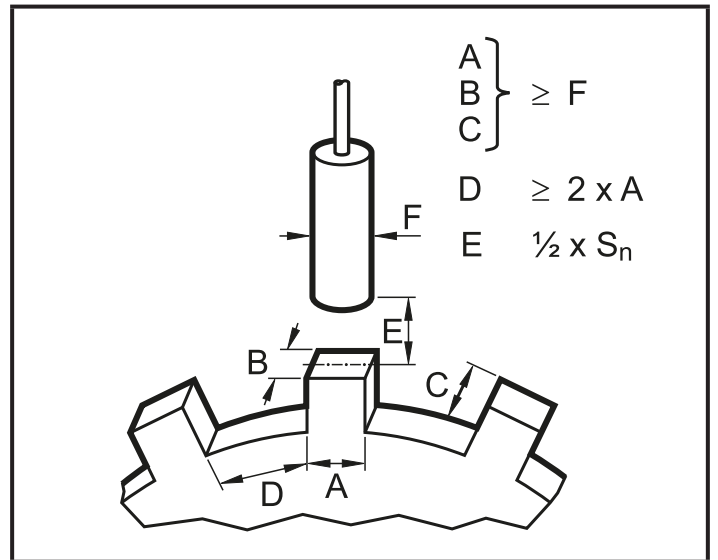
IO-Link allows the configuration of internal parameters such as start-up delay and switching behaviour (normally closed/normally open) as well as reading the current measured values. Furthermore IO-Link protects against signal faults and measured value losses as well as tampering with the sensor.

You will find the IODDs necessary for the configuration of an IO-Link device and detailed information about parameter setting tools, process data structure, diagnostic information and parameter addresses at [www.ifm.com/gb/io-link](http://www.ifm.com/gb/io-link).

## 4 Mounting



Mounting principle



Mounting specifications

- ▶ Fix the unit using a bracket and secure it by means of the nuts provided so that it cannot work loose.  
Flush installation.
- ▶ Adhere to the above mounting specifications to ensure a correct function.  
Nominal sensing range  $S_n$  ( $\rightarrow$  8 Technical data)

## 5 Electrical connection

- ▶ Disconnect power.
- ▶ Connect the device according to the wiring diagram.

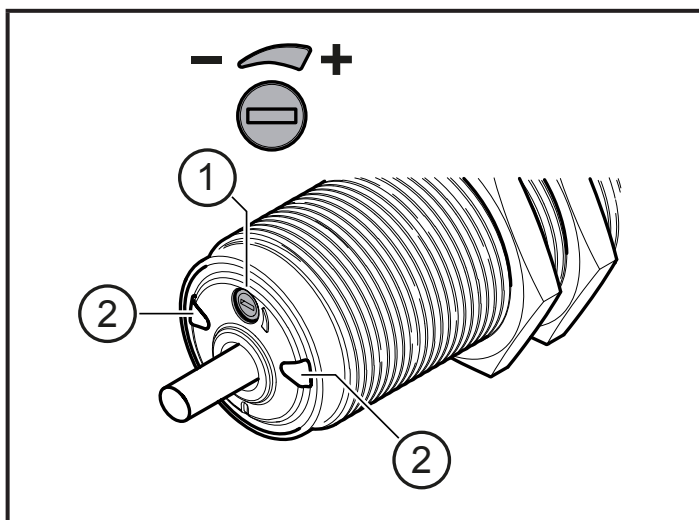
### 5.1 Wiring

DI5020, DI5021 DI5022, DI520A
BK = black BN = brown BU = blue

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DI5026, DI523A
BK = switching output / IO-Link / PNP / NPN programmable

## 6 Setting



Operating and display elements

- 1: Multi-turn potentiometer for switch point setting (without end stop)
- 2: LEDs:  
 Green LED for switching status indication  
 (→ 3.1 Switching function normally open)  
 Yellow LED for damping indication (input signal)  
 (→ 3.3 Damping)

- ▶ Keep the minimum speed to be monitored in the plant on a constant level.
- ▶ Connect the device to supply voltage.
- ▶ Wait until the start-up delay is over (→ 8 Technical data).
- ▶ Set the switch point depending on the status of the green LED.

## **6.1 Setting for switching function normally open**

When the green LED does not light:

- Turn the pot slowly anticlockwise (-) until the green LED lights.  
Setting is finished.

When the green LED lights:

- Turn the pot clockwise (+) until the green LED goes out.
- Turn the pot slowly anticlockwise (-) until the green LED lights.  
Setting is finished.

## **6.2 Setting for switching function normally closed**

When the green LED lights:

- Turn the pot slowly anticlockwise (-) until the green LED goes out.  
Setting is finished.

When the green LED does not light:

- Turn the pot clockwise (+) until the green LED lights.
- Turn the pot slowly anticlockwise (-) until the green LED goes out.  
Setting is finished.

## **7 Operation**

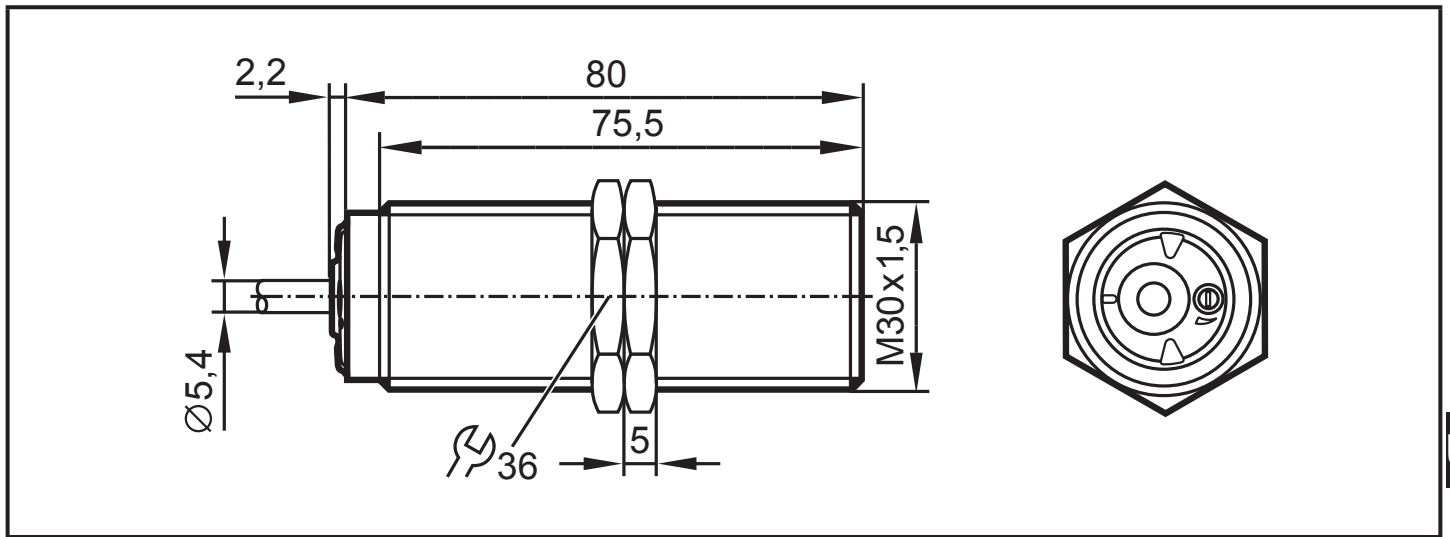
The operation is maintenance-free.

Ensure the following for a correct function:

- ▶ Keep the sensing face and the clear space free of metal deposits and foreign bodies.
- ▶ Do not operate units with high field intensity (e.g. mobile phones) at close range to the speed monitor.



## 8 Technical data



Dimensions [mm]

		DI5020	DI5021	DI5022	DI5026	DI520A	DI523A
Nominal voltage	[V]	10...36 DC					
Current consumption	[mA]	< 20			< 22	< 20	< 22
Current rating	[mA]	250					
Voltage drop	[V]	< 2.5					
Reverse polarity protection		yes					
Short-circuit protection		yes					
Overload protection		yes					
Nominal sensing range (Sn)	[mm]	10					
Operating distance	[mm]	0...8.1					
Setting range	[pulses/min]	5...3600					
Via potentiometer		●	●	●	○	●	○
Via IO-Link		-	-	-	○	-	○
Hysteresis	[% of SP]	10					
Damping frequency	[pulses/min]	$\leq 18000$					
Switching function NO		●	-	●	○	●	○
Switching function NC		-	●	-	○	-	○

		DI5020	DI5021	DI5022	DI5026	DI520A	DI523A
Start-up delay	[s]	15	5	0	0...30	15	0...30
Ambient temperature	[°C]	-25...80				-20...60	
Protection		IP 65 / IP 67 / III					
ATEX equipment category		-				3D	
IO-Link		-	-	-	●	-	●
Connection		PUR cable / 2 m; 3 x 0.5 mm <sup>2</sup>					

● = applicable

○ = programmable

- = not applicable

Data sheets and EC declarations of conformity can be found at:  
[www.ifm.com](http://www.ifm.com) → Data sheet search → Article number