

Inductive Speed Sensor ID

RE 95 130/04.05 1/4
replaces: 03.99

Technical Data Sheet

Series 2
for frequency proportional speed measurement



Contents

Ordering Code	2
Technical Data	3
Description	3
Measuring Arrangement	3
Terminal Connection	3
Example Application	3
Unit dimensions	4
Mating connector	4

Features

- No external voltage supply required
- Easy to install with fixed lengths of thread engagement ensured by spacer rings on the hydraulic motors
- Sealing surface for O-ring seal

Main components

- Permanent solenoid with coil
- Steel housing, galvanized and corrosion-protected
- Pressure resistant sensor measuring surface
- Water-tight plug-in connector

Ordering Code

ID	R	18	/	2	0	-	
01	02	03		04	05		06

Typ

01	Inductive speed sensor	ID
----	------------------------	-----------

Model

02	with circular connector conforming to DIN 72585	R
----	---	----------

Thread

03	M18x1,5	18
----	---------	-----------

Series

04		2
----	--	----------

Index

05		0
----	--	----------

Length of thread engagement

06	Fixed length of thread engagement	L = 25,0 mm	L250
		L = 40,0 mm	L400

Note:

Due to the inductive measuring principle, low speeds result in only a low voltage amplitude in the sensor signal. Therefore, in order to record slow speeds, e.g. to detect standstill for travel drives, an HDD Hall-effect speed sensor (see RE 95135) must be used instead of the ID speed sensor. (different installation conditions).

Material Number for Speed Sensor ID without Mounting Parts

Sensors	Material number
ID R 18/2 0 - L 250	R902600621
ID R 18/2 0 - L 400	R902600622

Material Number for Speed Sensor ID with Mounting Parts

Fixed displacement motor A2FM / AA2FM Size	23-32	45-56-63-80-90-107-125	160-180
Material number	R902073689	R902065633	R902063990

Fixed displacement motor A2FE Size	45	56-63	80-90-107-125	160-180
Material number	on request	on request	R902060223	on request

Variable displacement motor A6VM Size	28-55-80-107	140-160-200
Material number	R902033162	R902033161

Variable displacement motor AA6VM Size	55-80-107	160-200
Material number	on request	R902063854

Variable displacement motor A6VE Size	28-55-80-107-160
Material number	R902063767

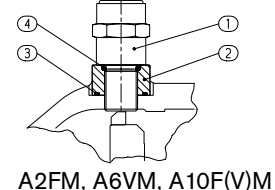
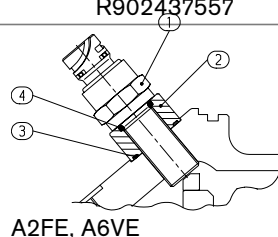
Fixed displacement motor A10FM Size	23-28	37-45	58-63
Material number	R902428802	R902433368	R902437556

Variable displacement motor A10VM Size	28	45	63
Material number	R902428802	R902437557	R902428802

Adapter parts

Item 1-4 included in the material number

- Item 1 Inductive speed sensor
- Item 2 Spacer ring
- Item 3 O-ring
- Item 4 O-ring



Technical Data

Parameters

Typ	ID	
Internal resistance of the coil	1050 Ω ± 100 Ω	
Operating temperature range	-30 °C bis +140 °C	
Storage temperature range	-55 °C bis +150 °C	
Enclosure protection class to DIN 40050	IP 67	
Tightening torque max.	50 Nm	
Installation position	beliebig	
Weight	IDR... -L250	ca. 100 g
	IDR... -L400	ca. 125 g
Gear wheel module m	2	
Measuring distance, sensor-to-gear-wheel	0,6 ± 0,3 mm	
Load impedance	10 kΩ	
Output voltage at Frequency $\frac{1}{T}$	Effective Voltage	
	500 sec ⁻¹	$U_{\text{eff}} \geq 0,7 \text{ V}$
	1000 sec ⁻¹	$U_{\text{eff}} \geq 1,0 \text{ V}$
	2000 sec ⁻¹	$U_{\text{eff}} \geq 1,5 \text{ V}$
4000 sec ⁻¹	$U_{\text{eff}} \geq 1,5 \text{ V}$	

Descripton

The inductive speed sensor ID is used for contact-free measurement of the rotary speeds at the Axial piston pump of type A4VTG (see RE 92012) and Axial piston motors of Rexroth (as to table page 2).

The Hall speed sensor Hdd (as to RE 95135) should, however, be applied in new projects (different installation conditions).

The sensor is installed in a special mounting hole in the housing of the axial piston pump/motor and detects the speed on an internal gear wheel or comparable component made of ferromagnetic material.

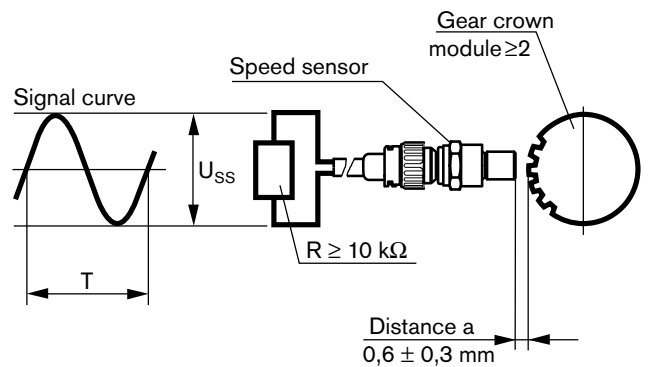
The frequency f of the generated sensor output voltage is a function of the number of teeth z on the circumference of the gear wheel and of the rotary speed n of the Axial piston unit:

$$f = \frac{z \cdot n}{60} \quad \begin{array}{l} f \text{ in sec}^{-1} \\ n \text{ in min}^{-1} \end{array}$$

Based on the frequency the speed of the axial piston unit can be calculated with the BODAS controllers RC (RE 95200).

The speed sensor ID is simply screwed firmly into the housing of the axial piston unit and requires no further adjustment. In the axial piston motor, the precise measuring distance is set by a special spacer ring, which has an integral O-ring to ensure a safe seal against the housing pressure.

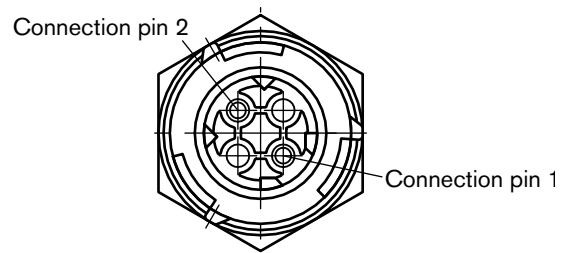
Measuring Arrangement



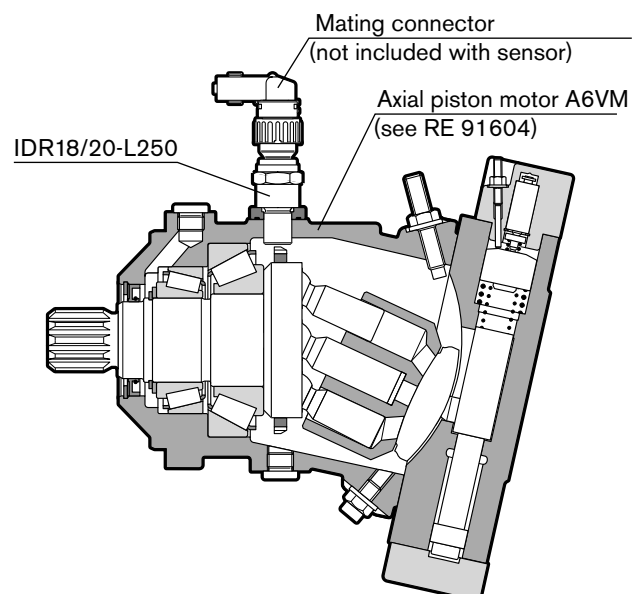
Impulse frequency (speed proportional) $f = \frac{1}{T}$

Effective voltage $U_{\text{eff}} = \frac{U_{\text{ss}}}{2 \cdot \sqrt{2}}$

Terminal Connection

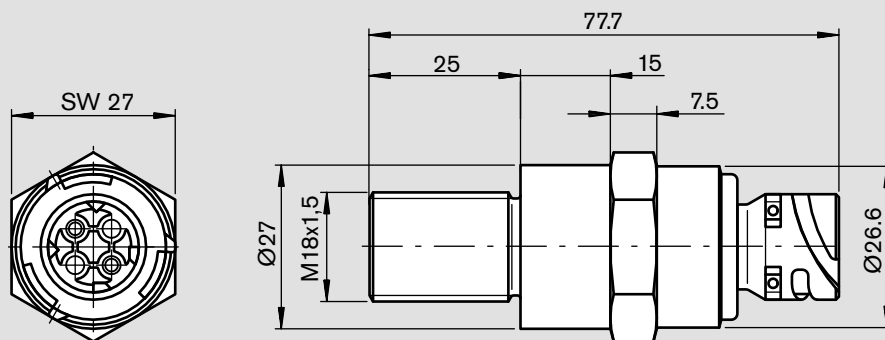


Example Application

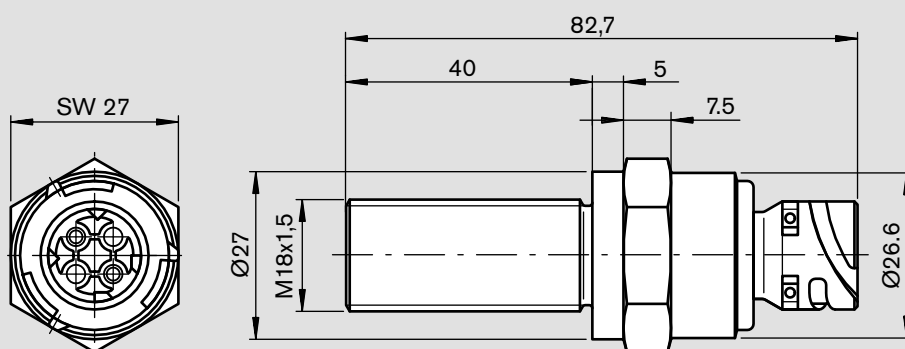


Unit dimensions

IDR18/20-L250



IDR18/20-L400



Mating connector

Order designation	Comprising	AMP-No.
Round adapter AMP 90°, 3-pin Material number: R902600625	1 socket housing, 3-pin, coding 1	AMP 1-967325-2
	1 cap 90° with variable clamping	AMP 965576-1
	3 socket contacts for wire size 0,5-1,0	AMP 962981-1
	3 individual seals	AMP 828920-1
	1 blanking plug	AMP 828922-1
	Round adapter AMP 180°, 3-pin Material number: R902600626	1 socket housing, 3-pin, coding 1
1 cap 180° with variable clamping		AMP 965784-1
3 socket contacts for wire size 0,5-1,0		AMP 962981-1
3 individual seals		AMP 828920-1
1 blanking plug		AMP 828922-1

The mating connector is not included in the delivery volume.

This one is available at Rexroth upon the a.m. order designation and material number.