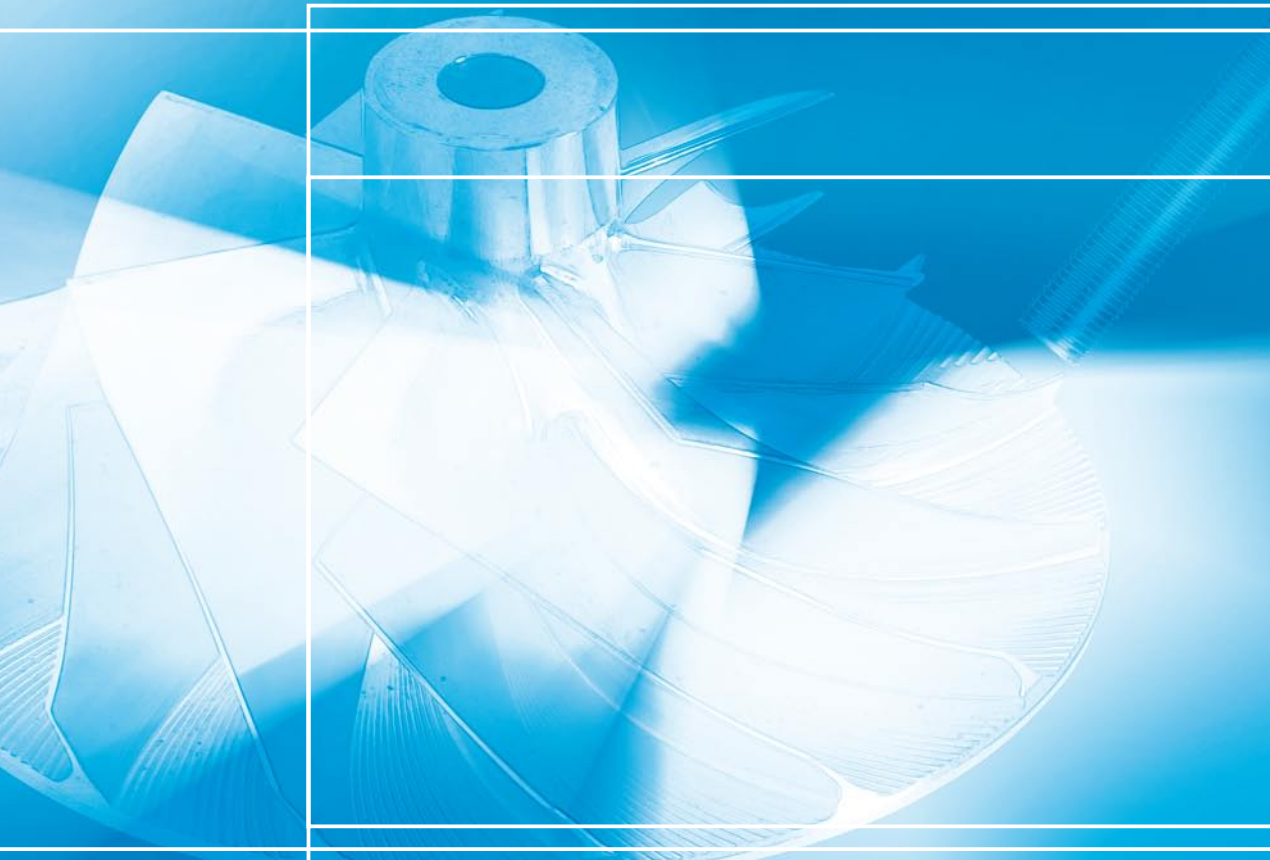




More Precision.

turboSPEED DZ135

Speed Sensor for Turbo Chargers





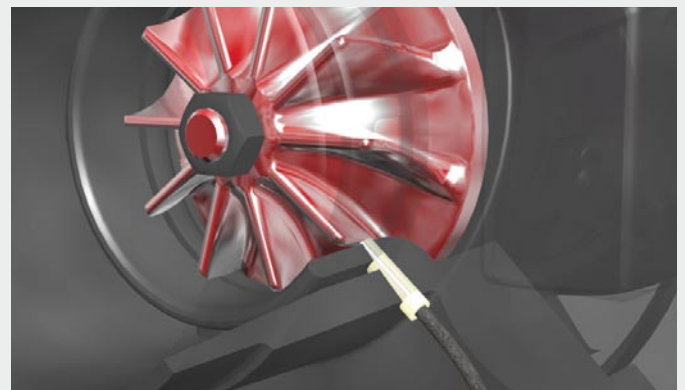
Measuring principle

A coil is potted in a sensor case and is energized by a high frequency alternating current. The electromagnetic field from the coil generates eddy currents in the turbo-charger blade. Every blade generates a pulse. The controller identifies the speed (analog 0 ... 10 V) by considering the number of blades.

System properties

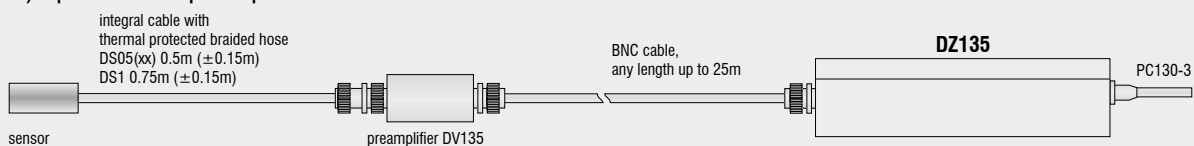
The DZ 135 marks the arrival of the next generation in eddy current turbocharger speed measurement systems. The primary aim of the further development was to produce a system immune to the most difficult EMC test cell conditions. Particularly where multi-test cells are in use, very high levels of EMC emissions are causing effect on test cell instrumentation. The DZ 135 offers a new electronic circuit which 'boosts' signal levels from the sensor and also dramatically improves circuit shielding. This gives the sensor EMC levels of immunity which are several factors higher than existing devices in the marketplace. The system has also been designed to be able to replace the sensor mounted in the turbo housing, without having to recalibrate the system electronics. The eddy current measurement technique is also immune to the effects of oil, dirt, carbon particles that can be found in the engine, which can affect the measurement output quality of other measurement principles, particularly capacitive and optical measurement technologies.

- Maximum speed range from 500 to 400,000 RPM
- Miniature sensor design (ø 3 mm)
- No rotor modification
- In test rig operation and also in road tests
- Highest interference immunity and accuracy
- Supply 9 ... 30VDC
- Target-sensor gap to 1.5mm
- Changing sensor without calibration

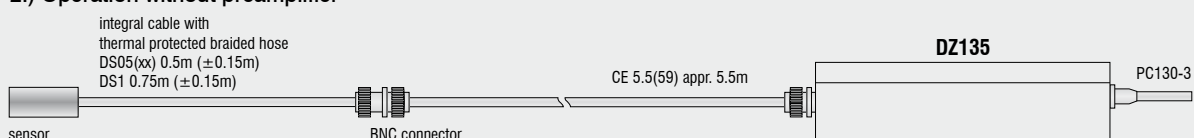


Non-contact turbocharger speed measurement up to 400,000 RPM

1.) Operation with preamplifier



2.) Operation without preamplifier



Model		DZ135 (Controller)					
Preamplifier (option))		DV 135					
Sensors		DS 05(03)	DS 05(04)	DS 05(07)	DS 05(14)	DS 05(15)	DS 1 DS 1 (04)
Measuring principle		eddy-current loss principle					
Target (blade material)		aluminium or titan					
Operating temperature	electronics	-30 to +70°C					
	preamplifier	-30 to +125°C					
	sensor	-40 to +200°C				-40 to +285°C	
Maximum speed range		500 ... 400,000 RPM					
Distance sensor to blade	blade width <1.2mm	appr. 0.1 ... 0.5mm				0.1 - 1mm	
	blade width >1.2mm	appr. 0.1 ... 0.7mm				0.1 - 1.5mm	
		adjusting with LED-indicator (green)					
Number of blades		programmable divider (jumper) from 2 up to 17 blades					
Output 1 (digital)		1 pulse / blade (TTL-level, variable pulse duration)					
Output 2 (digital)		1 pulse / revolution (TTL-level, pulse duration 100µs)					
Output 3 (analog)	jumper 1	0 ... 10V (0 ... 200.000 RPM)					
	jumper 2	0 ... 10V (0 ... 400.000 RPM)					
		load resistance min 1kOhm, load capacitance max. 1nF					
		output frequency 1.5 to 100Hz (speed sloping)					
	linearity	±0.2% FSO.					
	resolution	0.1% FSO					
Power supply		9V ... 30VDC / max. 150mA (temporarily up to 36VDC)					
Sensor cable	with preamplifier DV135	any cable length up to max. 25m; any BNC cable (impedance 75Ohm or 95Ohm)					
	without preamplifier	total length appr. 6m for direct operation (sensor cable CE5.5(59) necessary)					
Integral sensor cable		0.5m ±0.15m				0.75m ±0.15m	
Weight		controller DZ 135: appr. 380g					
		preamplifier DV135: appr. 50g					

FSO = Full Scale Output

Accessories

PC 130-3, 3m

Supply and signal cable
tinned eds for feeding (open ends)
analog output and 2 x TTL-signal on
BNC connector

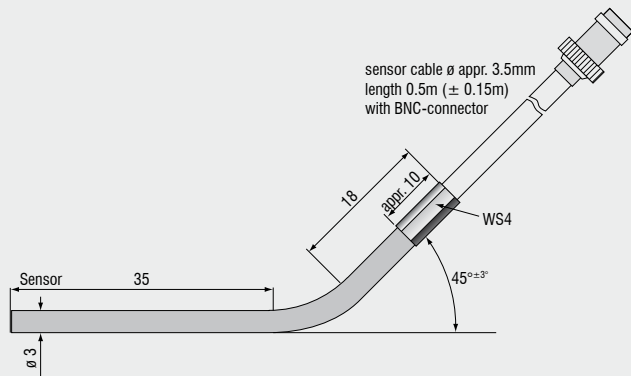
CE135-10, BNC-cable, 10m

Cable extension between preamplifier and controller,
operation temperature up to 200°C

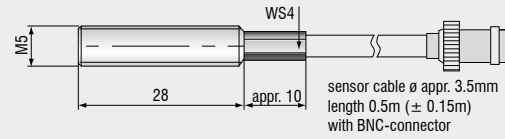
CE5,5(59), cable extension

only for use without preamplifier DZ135

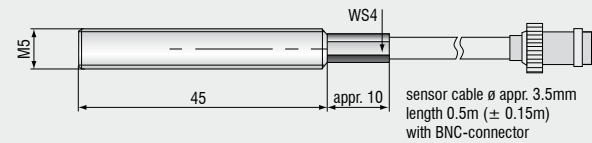
Sensor DS05(03)



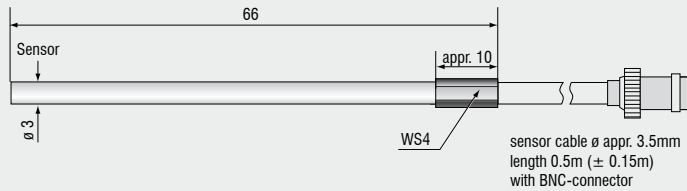
Sensor DS05(14)



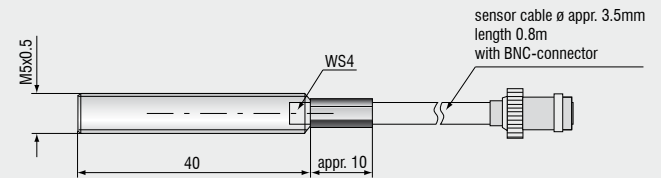
Sensor DS05(15)



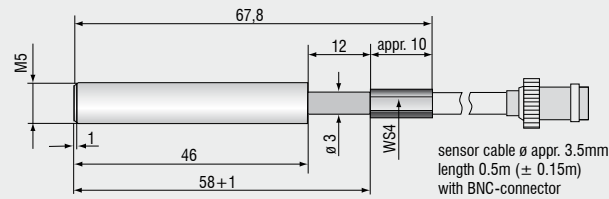
Sensor DS05(04)



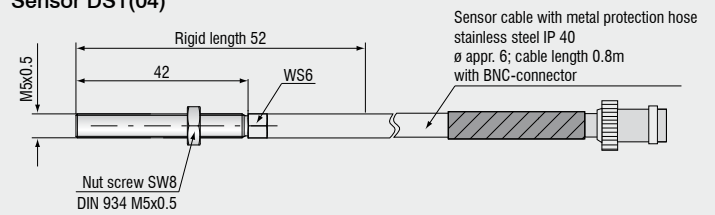
Sensor DS1



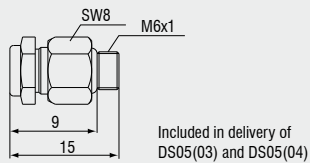
Sensor DS05(07)



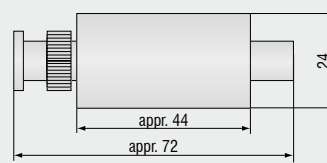
Sensor DS1(04)



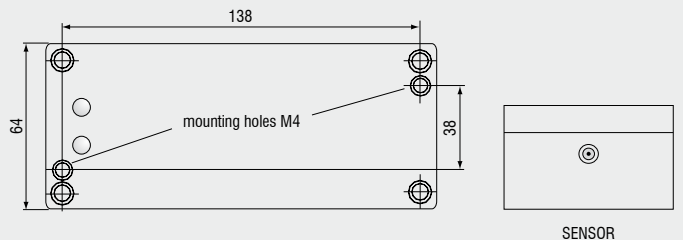
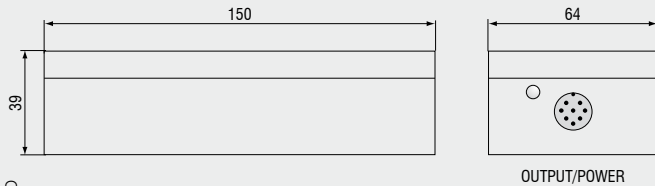
Mounting adapter MA135



Preamplifier DV135



Controller DZ 135



Dimensions in mm, not to scale