

Sensor-Conversion List

Properties	DSE		DSF	DSF static		DSD						DSH	DSY	
	DSE	DSE ..V	3-wire	3-wire	2-wire	static	dynamic	x.11	x.17	x.19	x.21			x.30
Principle	Electro-magnetic	Electro-magnetic with amplifier	Hall Effect	Chopped Hall Effect	Chopped Hall Effect	Differential Hall Effect	Differential Hall Effect	Differential Hall Effect static	Differential Hall Effect	Differential Hall Effect static	Differential Hall Effect static	Differential Hall Effect static	High frequency	Chopped Hall Effect
Short Description	Coil system delivers an output voltage	Coil system generates a voltage that is amplified by an open collector output stage	Magnetically biased Hall chip with Schmitt trigger amplifier	Magnetically biased Hall chip with Schmitt trigger amplifier	Magnetically biased Hall chip with Schmitt trigger amplifier	Magnetically biased static differential Hall chip with Schmitt trigger amplifier	Magnetically biased Hall chip with Schmitt trigger amplifier	Magnetically biased static differential Hall chip with Schmitt trigger amplifier	Magnetically biased Hall chip with Schmitt trigger amplifier	Magnetically biased static differential Hall chip with Schmitt trigger amplifier	Magnetically biased static differential Hall chip with Schmitt trigger amplifier	Magnetically biased static differential Hall chip with Schmitt trigger amplifier	High frequency coil system with Schmitt trigger amplifier	Magnetically biased Hall chip with Schmitt trigger amplifier
Main Application	Turbines, Turbochargers, Automotive Applications	Turbine compressor wheels at high speed	Turbines, Diesel motors, General industry	Diesel motor camshaft	Turbines. Replacement for FTG 1085	Railway traction; general industry	Diesel motor crankshaft; general industry	Railway traction	Railway brakes	Railway traction	Railway traction, brakes, signals & black box recorder	Railway brakes	Turbochargers	Hydraulics; gearboxes
Supply	-	5 .. 30 VDC	10 .. 30 VDC	10 .. 30 VDC	9 .. 28 VDC	8 .. 30 VDC	12 ..35 VDC	10 ..16 VCD	9 ..30 VDC	9 ..30 VDC	10 .. 30 VDC	14 ..25 VDC	10 ..30 VDC	4.5VDC .. 16 VDC or 8VDC .. 32VDC
Frequency range	Data in m/s preferred (ca10Hz..50 kHz)	Data in m/s preferred (ca10Hz..50 kHz)	0.05 Hz - 20 kHz	0 Hz .. 15 kHz	0 Hz .. 15 kHz	0 Hz .. 20 kHz	2 Hz .. 20 kHz	0 Hz .. 20 kHz	5 Hz .. 20 KHz	0 Hz .. 20 kHz	0 Hz .. 15 kHz	5 Hz .. 20 kHz	0.1 Hz .. 20 kHz	0 Hz .. 15 kHz
Current consumption (at no load)	-	Dependent on external pull up resistor	max. 14 mA	max. 14 mA	max. 10 mA	max. 15 mA	max. 15 mA	max 75 mA	max. 15 mA	max. 30 mA	max. 25mA (S1+S2) + max. 15mA (S3)	max. 20 mA	max. 12 mA	max. 14 mA
Possible cable length	20 to 500m dependent on operating conditions	to ca.300 m	to ca. 300m	to ca. 300m	to ca. 200m	to ca. 300m	to ca. 300m	to ca. 300m	to ca. 300m	to ca. 300m	to ca. 200m	to ca. 300m	to ca. 300m	to ca. 300m
Ex-Atex Versions available	✓	Not available	✓	Not available	✓	Only FTG 1089	Only FTG 1088	Not available	Not available	Not available	Not available	Not available	Not available	Not available
Built in Signal treatment	Not available	Not available	Not available	Not available	Not available	Not available	Not available	Not available	Not available	Not available	Not available	Not available	Not available	IQ
Polewheel structures														
Involute gear	Sinusoidal signal; amplitude dependent on frequency (speed)	Open Collector Clipped sinusoidal signal	1 x Push-Pull HI > Vcc -2.5V LO< 2.5 V at 25 mA	1 x Push-Pull HI > Vcc -2.5V LO< 2.5 V at 25 mA	Voltage drop of 2.2 Vpp across 820 Ohm DC component = 3/4Vcc	1 x Push-Pull HI > Vcc -2.5V LO< 2.5 V at 25 mA	1 x Push-Pull HI > Vcc -2.8V LO< 2 V at 25 mA	S1 to S2 > 20° 2 x Push-Pull HI > 12.2 V LO< 2.5 at 20 mA	1 x Push-Pull HI > Vcc -2.5V LO< 2.5 V at 25 mA	2 x Push-Pull HI > Vcc -2.5V LO< 2.5 V at 20 mA	S1 to S2 > 20° . S3 - no phase relationship 3 x Push-Pull HI > Vcc -2.5V LO< 2.5 V at 10 mA	1 x Push-Pull HI: 11V<U<13V LO: 0V<U<2V <5Hz: 6V<U<7V	1 x Push-Pull HI > Vcc -2.5V LO< 2.5 V at 15 mA	S1 to S2 >20° or Direction signal 2 x Push-Pull: HI> Vcc -1V LO< 1V at 20 mA 2 x OC: 10k 20mA
Module / Air Gap	min. 0.1 mm	min. 0.1 mm	1.0: 0.2..1.0 mm 2.0: 0.2..2.5 mm 4.0: 0.2..4.5 mm	1.0: 0.3..0.5 mm 2.0: 0.3.. 1.8 mm	1.0: 0.3..0.5 mm 2.0: 0.3..1.8 mm 4.0: 0.3..2.0 mm	1.0: 0.1..0.5 mm 2.0: 0.1..1.3 mm 4.0: 0.1..1.5 mm	0.5: 0.1..0.3 mm 1.0: 0.1..1.5 mm 2.0: 0.1..2.0 mm	2.0: 0.5..1.5mm	0.5: 0.1..0.3 mm 1.0: 0.1..1.5 mm	2.0: 0.5..1.5mm	2.0: 0.5..1.5mm	1.0: 0.1..1.5 mm 2.0: 0.1..2.0mm	4.0: 0.2 ..4 mm (Alu blades down to ca. 1mm width in radial plane)	1.0: 0.3..0.5 mm 2.0: 0.3..1.8 mm 3.0: 0.3..2.0mm
Remarks				Possible jitter due to sampling	Possible jitter due to sampling	Static behaviour only with continuous supply		Static behaviour only with continuous supply		Static behaviour only with continuous supply	Possible jitter due to sampling		Possibility to detect all kind of Metallic structures	Possible jitter due to sampling
Notches with sharp edges	Some signal distortion due to ringing		Results comparable with involute gears (caution if Mark:Space not 1:1)	Results comparable with involute gears. Suitable for large Mark:Space ratios.	Results comparable with involute gears. Suitable for large Mark:Space ratios.	Not recommended	Results comparable with involute gears (caution if Mark:Space not 1:1)	Not recommended	Results comparable with involute gears (caution if Mark:Space not 1:1)	Not recommended	Results comparable with involute gears. Suitable for large Mark:Space ratios.	Not recommended	Results comparable with involute gears. Suitable for large Mark:Space ratios.	Results comparable with involute gears. Suitable for large Mark:Space ratios.
Index (single pin, or hole)	Possible but low signal level at low speed	Possible but low signal level at low speed	Not recommended	NB. Frequency limit of 15kHz also reached with short pulse duration	NB. Frequency limit of 15kHz also reached with short pulse duration	Not recommended	✓	Not recommended	✓	Not recommended	Not recommended	Not recommended	✓	NB. Frequency limit of 15kHz also reached with short pulse duration
Flat on a shaft	✓	✓	✓	✓	✓	Not recommended	Not recommended	Not recommended	Not recommended	Not recommended	Not recommended	Not recommended	✓	✓
Large wheel masses	✓	✓	Not recommended	Not recommended	Not recommended	✓	✓	Not recommended	Not recommended	Not recommended	Not recommended	Not recommended	Not recommended	Not recommended
Application as proximity switch	Not recommended	Not recommended	Not recommended	Ferromagnetic material reliably detected at a distance of 3.5mm	Ferromagnetic material reliably detected at a distance of 3.5mm	Static behaviour only with continuous supply	Not recommended	Not recommended	Not recommended	Not recommended	Not recommended	Not recommended	Not recommended	Ferromagnetic material reliably detected at a distance of 3.5mm