

## Motor Feedback - Incremental

### AC-Synchronous & BLDC Motors



Type	HC 20	RF 53
<b>Special features</b>	<ul style="list-style-type: none"> <li>Compact hollowshaft motor encoder, ideal for BLDC, DC servo and Stepper feedback</li> <li>Incremental + commutation</li> <li>Phased Array Technology</li> <li>Frequency response to 500 kHz</li> <li>Operating temperature up to 120 °C</li> <li>Outside diameter 50 mm</li> <li>Cable plug-in radial/axial</li> </ul>	<ul style="list-style-type: none"> <li>Solid shaft motor encoder for BLDC and gearless elevator traction machines</li> <li>Incremental + commutation</li> <li>Up to 10 000 ppr</li> <li>Operating temperature up to 120 °C</li> <li>IP54</li> <li>Outside diameter 53 mm</li> </ul>
Number of pulses		500 ... 10 000
<b>Technical Data - mechanical</b>		
Housing diameter	50 mm	53 mm
Mounting depth	36"	
Shaft diameter	6 mm ... 8 mm	Cone solid shaft
Flange (Mounting of housing)	Tether	Tether
Protection class shaft input	IP50	IP54
Protection class housing	IP50	IP54
Shaft load axial / radial		20 N / 90 N
Max. speed	max. 12 000 rpm	max. 5000 rpm
Vibration resistance		25 m/s <sup>2</sup>
Shock resistance		1000 m/s <sup>2</sup>
Operating temperature	0 °C ... +120 °C	-20 °C ... +120 °C
Connection	Cable	Cable / Sub-D / PCB
<b>Technical Data - electrical</b>		
Supply voltage		DC 5 V ±10 %
Current w/o load typ.	max. 175 mA	max. 100 mA
Max. pulse frequency	500 kHz	100 kHz
Output		NPN-O.C. / RS422
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## Motor Feedback - Absolute

### Asynchronous & DC Motors



Type	AD 34	AD 35	AD 36
<b>Special features</b>	<ul style="list-style-type: none"> <li>For brushless servo motors</li> <li>Light duty encoder</li> <li>Unique mounting concept: Save installation time and cost</li> <li>Mounting Depth: 25 mm (ST), 34 mm (MT)</li> <li>Up to 19 Bit ST - resolution + 12 Bit MT - resolution</li> <li>+120°C operating temperature</li> <li>10,000 rpm continuous operation</li> <li>BiSS or SSI interface</li> <li>Sinewave 1 Vpp</li> <li>Bandwidth 500 kHz</li> </ul>	<ul style="list-style-type: none"> <li>Shortest absolute encoder world wide</li> <li>Mounting depth: 23.65 mm</li> <li>Hub shaft 8 mm</li> <li>Resolution up to 22 Bit Singleturn</li> <li>+120°C operating temperature</li> <li>10,000 rpm continuous operation</li> <li>BiSS or SSI interface</li> <li>Bandwidth 500kHz</li> <li>Bandwidth 500 kHz</li> </ul>	<ul style="list-style-type: none"> <li>For brushless servo motors</li> <li>Resolver size 15 compatible</li> <li>Through hollow shaft 8 mm</li> <li>19 Bit Singleturn + 12 Bit Multiturn</li> <li>+120°C operating temperature</li> <li>10,000 rpm continuous operation</li> <li>Optical encoder with a true geared multiturn</li> <li>BiSS or SSI interface</li> <li>Sinewave 1 Vpp</li> <li>Bandwidth 500 kHz</li> </ul>
Number of pulses	2048	2048	2048
<b>Technical Data - mechanical</b>			
Housing diameter	37.5 mm	37.5 mm	37.5 mm
Shaft diameter	6 mm (Notched Shaft)	8 mm (Hubshaft)	8 mm (Through hollow shaft) 8 mm (Hubshaft)
Flange (Mounting of housing)	Tether	Tether	Tether
Protection class shaft input	IP40	IP40	IP40
Protection class housing	IP40	IP40	IP40
Max. speed	max. 12 000 rpm	max. 12 000 rpm	max. 12 000 rpm
Vibration resistance	100 m/s <sup>2</sup> (10 ... 2000 Hz)	100 m/s <sup>2</sup> (10 ... 2000 Hz)	100 m/s <sup>2</sup> (10 ... 2000 Hz)
Shock resistance	1000 m/s <sup>2</sup> (6 ms)	1000 m/s <sup>2</sup> (6 ms)	1000 m/s <sup>2</sup> (6 ms)
Operating temperature	-15 °C ... +120 °C	-15 °C ... +120 °C	-40 °C ... +120 °C
Connection	Cable / PCB	Cable / PCB	Cable / PCB
<b>Technical Data - electrical</b>			
Supply voltage	DC 5 V -5 %/+10 % or DC 7 - 30 V	DC 5 V -5 %/+10 % or DC 7 - 30 V	DC 5 V -5 %/+10 % or DC 7 - 30 V
Current w/o load typ.	max. 100 mA	max. 100 mA	max. 100 mA
Resolution singleturn	12 - 17 Bit (SSI) 12 - 19 Bit (BiSS)	12 - 22 Bit	12 - 19 Bit (BiSS) 12 - 17 Bit (SSI)
Resolution multiturn	12 Bit	12 Bit	12 Bit
Output code	Gray	Gray	Gray
Alarm output	Alarm bit (SSI Option), warning bit and alarm bit (BiSS)	Alarm bit (SSI Option), warning and alarm bit (BiSS)	Alarm bit (SSI Option), warning and alarm bit (BiSS)
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