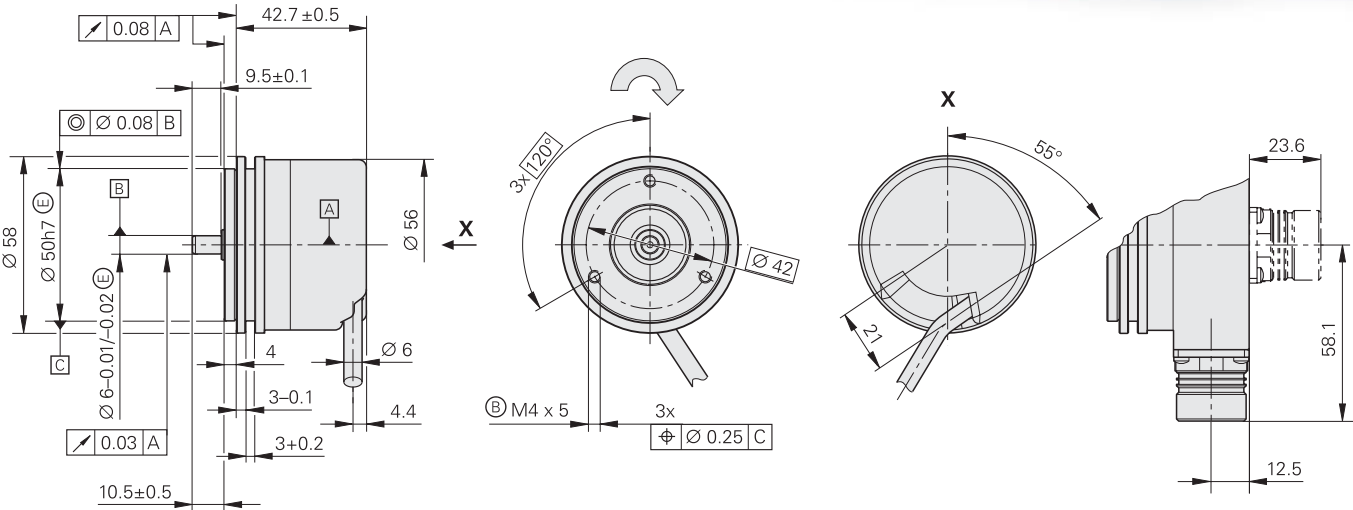


ROC/ROQ/ROD 400 Series with Synchro Flange

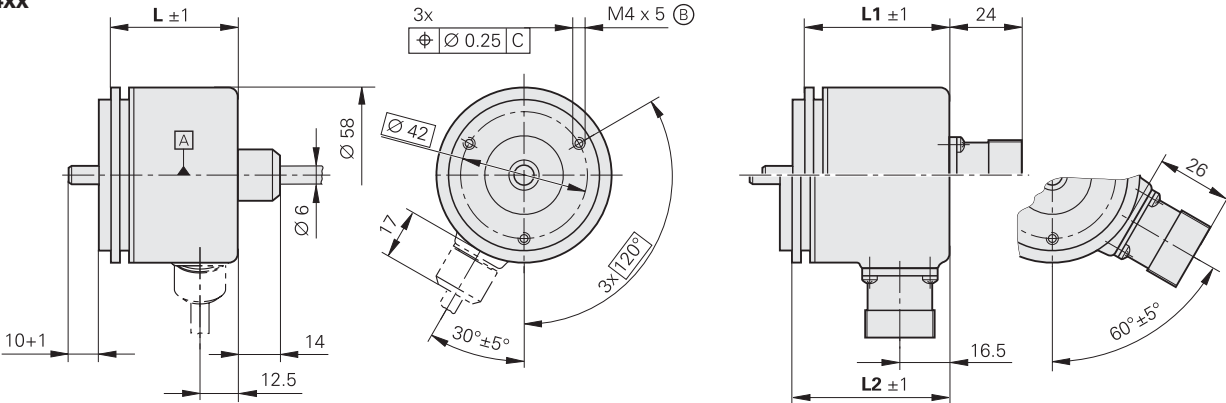
Rotary encoders for separate shaft coupling



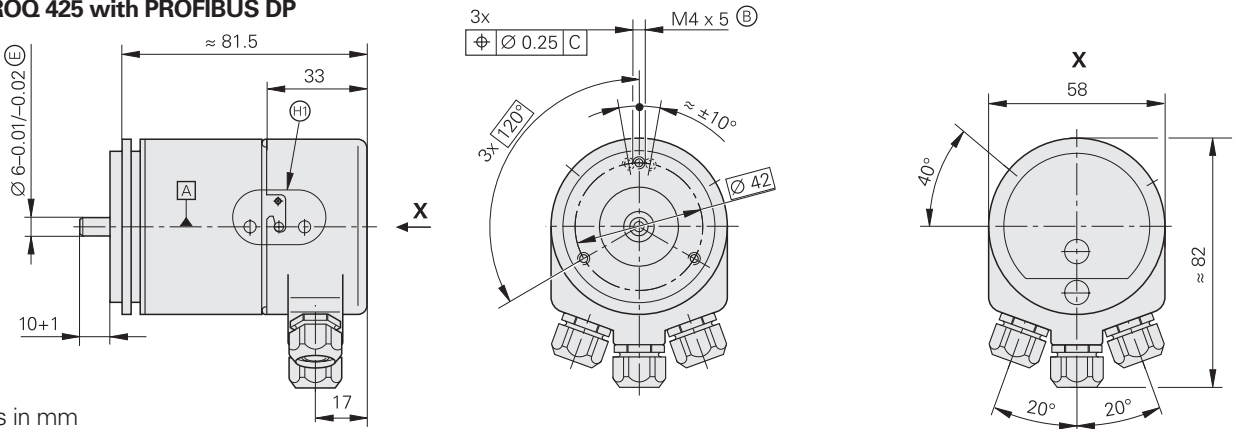
ROD 4xx



ROC/ROQ 4xx



ROC 413/ROQ 425 with PROFIBUS DP



Dimensions in mm



Tolerancing ISO 8015
ISO 2768 - m H

Ⓐ = Bearing

Ⓑ = Threaded mounting hole

Ⓜ = Shown rotated by 40°

↻ Direction of shaft rotation for output signals is described in interface description

	L	L1	L2
ROC/5 V	42	48	52
ROC/10 to 30 V	48	48	52
ROQ	59	59	59
ROQ 425 programmable	63	63	63

	Absolute Singleturn					Multiturn				Offline programming	Incremental					
	ROC 413	ROC 410	ROC 412	ROC 413	ROC 413	ROQ 425	ROQ 424	ROQ 425	ROQ 425	ROQ 425	ROD 426	ROD 466	ROD 436	ROD 486		
Absolute position values*	EnDat	SSI			PROFIBUS-DP	EnDat	SSI		PROFIBUS-DP	SSI or serial right-aligned ²⁾	–					
Positions per rev.	8192 (13 bits)	1024 (10 bits)	4096 (12 bits)	8192 (13 bits)	8192 (13 bits) ¹⁾	8192 (13 bits)	4096 (12 bits)	8192 (13 bits)	8192 (13 bits) ²⁾		–					
Distinguishable revolutions	–					4096			4096 ²⁾		–					
Code	Pure binary	Gray			Pure binary	Pure binary	Gray		Pure binary	Pure binary/Gray ²⁾	–					
Elec. perm. speed/ at system accuracy	<i>512 lines:</i> 5000 rpm/± 1 LSB 12000 rpm/± 100 LSB <i>2048 lines:</i> 1500 rpm/± 1 LSB 12000 rpm/± 50 LSB					<i>512 lines:</i> 5000 rpm/± 1 LSB 10000 rpm/± 100 LSB <i>2048 lines:</i> 1500 rpm/± 1 LSB 10000 rpm/± 50 LSB				Updating time 500 µs	–					
Incremental signals	 1 V _{PP} ¹⁾			–	 1 V _{PP} ¹⁾			–	 1 V _{PP} ¹⁾		 TTL		 HTL	 1 V _{PP} ¹⁾		
Line counts/ Signal periods*	512 2048	512	512 (internal only)	512 2048	512	512 (internal only)	512	512	512	512	50 100 150 200 250 360 500 512 720		–			
											1000 1024 1250 1500 1800 2000 2048 2500 3600 4096 5000					
											6000 ⁴⁾ 8192 ⁴⁾ 9000 ⁴⁾ 10000 ⁴⁾		–			
Cutoff frequency –3 dB Scanning frequency Edge separation <i>a</i>	<i>512 lines:</i> ≥ 100 kHz; <i>2048 lines:</i> ≥ 200 kHz – –			–	<i>512 lines:</i> ≥ 100 kHz; <i>2048 lines:</i> ≥ 200 kHz – –					– ≤ 300 kHz ≥ 0.43 µs			≥ 180 kHz – –			
Power supply*/ Max. current consumption without load	5 V ± 5 % 150 mA	5 V ± 5 % or 10 to 30 V/ 150 mA			10 to 30 V/ 125 mA with 24 V	5 V ± 5 %/ 250 mA	5 V ± 5 % or 10 to 30 V/ 250 mA		10 to 30 V/ 125 mA with 24 V	10 to 30 V/ 300 mA	5 V ± 10 %/ 120 mA	10 to 30 V/ 100 mA	10 to 30 V/ 150 mA	5 V ± 10 %/ 120 mA		
Electrical connection*	• Flange socket axial or radial • Cable 1 m/5 m, axial or radial, with or without coupling				Screw terminals; radial cable exit	• Flange socket axial or radial • Cable 1 m/5 m, axial or radial, with or without coupling			Screw terminals; radial cable exit	Flange socket radial	• Flange socket axial or radial • Cable 1 m/5 m, radial, also usable axially, with or without coupling					
Max. cable length	150 m	100 m				150 m	100 m				100 m	300 m	150 m			
Shaft	Solid shaft D = 6 mm					Solid shaft D = 6 mm					Solid shaft D = 6 mm					
Mech. permissible speed	≤ 12000 rpm					≤ 10000 rpm					≤ 16000 rpm					
Starting torque	≤ 0.01 Nm (at 20 °C)					≤ 0.01 Nm (at 20 °C)					≤ 0.01 Nm (at 20 °C)					
Moment of inertia of rotor	3.6 · 10 ^{–6} kgm ²					3.8 · 10 ^{–6} kgm ²					2.7 · 10 ^{–6} kgm ²					
Shaft load	<i>n</i> ≤ 6000 rpm: axial 40 N/radial 60 N at shaft end <i>n</i> > 6000 rpm: axial 10 N/radial 20 N at shaft end					<i>n</i> ≤ 6000 rpm: axial 40 N/radial 60 N at shaft end <i>n</i> > 6000 rpm: axial 10 N/radial 20 N at shaft end					<i>n</i> ≤ 6000 rpm: axial 40 N/radial 60 N at shaft end <i>n</i> > 6000 rpm: axial 10 N/radial 20 N at shaft end					
Vibration (55 to 2000 Hz) Shock 6 ms	≤ 100 m/s ² (IEC 60068-2-6) ≤ 1000 m/s ² (IEC 60068-2-27)					≤ 100 m/s ² (IEC 60068-2-6) ≤ 1000 m/s ² (IEC 60068-2-27)					≤ 300 m/s ^{2 5)} (IEC 60068-2-6) ≤ 2000 m/s ² (IEC 60068-2-27)					
Max. operating temperature	100 °C	<i>U_P</i> = 5 V: 100 °C <i>U_P</i> = 10 to 30 V: 85 °C			60 °C	100 °C	<i>U_P</i> = 5 V: 100 °C <i>U_P</i> = 10 to 30 V: 85 °C		60 °C	70 °C	100 °C	70 °C	100 °C			
Min. operating temperature	<i>Flange socket or fixed cable:</i> –40 °C <i>Moving cable:</i> –10 °C				–20 °C	<i>Flange socket or fixed cable:</i> –40 °C <i>Moving cable:</i> –10 °C			–20 °C		<i>Flange socket or fixed cable:</i> –40 °C <i>Moving cable:</i> –10 °C					
Protection IEC 60529	IP 67 at housing; IP 64 at shaft end ³⁾					IP 67 at housing; IP 64 at shaft end ³⁾					IP 67 at housing; IP 64 at shaft end ³⁾					
Weight	Approx. 0.35 kg					Approx. 0.35 kg					Approx. 0.3 kg					

Bold: This preferred version is available on short notice
* Please indicate when ordering

¹⁾ Restricted tolerances: Signal amplitude 0.8 to 1.2 V_{PP}
²⁾ These functions are programmable.
³⁾ IP 66 upon request
⁴⁾ Through integrated signal doubling
⁵⁾ 150 m/s² on flange socket version