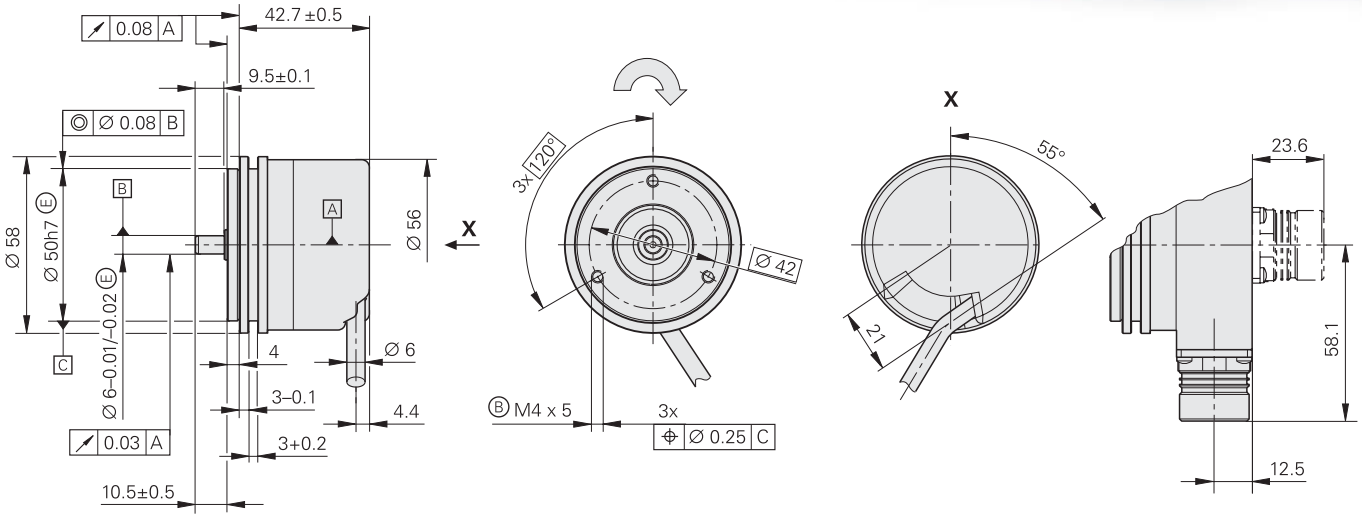
ROC/ROQ/ROD 400 Series with Synchro Flange

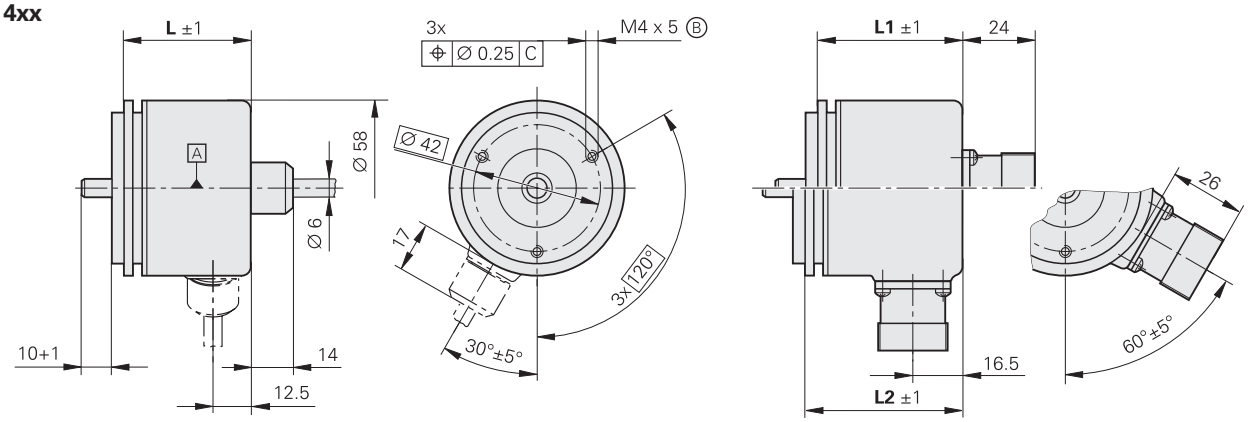
Rotary encoders for separate shaft coupling



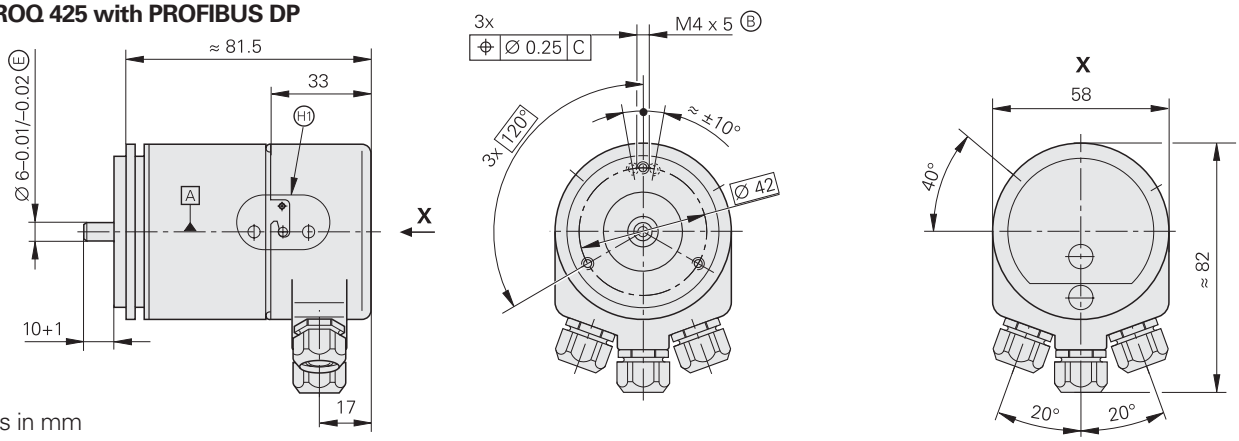
ROD 4xx



ROC/ROQ 4xx



ROC 413/ROQ 425 with PROFIBUS DP



Dimensions in mm

Tolerancing ISO 8015
ISO 2768 - m H

	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

A = Bearing
B = Threaded mounting hole
H1 = Shown rotated by 40°
Direction of shaft rotation for output signals is described in interface description

	Absolute									Incremental			
	Singleturn					Multiturn				Offline programming				
	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	*512 lines:* 5000 rpm/± 1 LSB 12000 rpm/± 100 LSB *2048 lines:* 1500 rpm/± 1 LSB 12000 rpm/± 50 LSB					*512 lines:* 5000 rpm/± 1 LSB 10000 rpm/± 100 LSB *2048 lines:* 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	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 *a*	*512 lines:* ≥ 100 kHz; *2048 lines:* ≥ 200 kHz – –			–		*512 lines:* ≥ 100 kHz; *2048 lines:* ≥ 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	$3.6 \cdot 10^{-6}$ kgm^2					$3.8 \cdot 10^{-6}$ kgm^2					$2.7 \cdot 10^{-6}$ kgm^2			
Shaft load	*n ≤ 6000 rpm:* axial 40 N/radial 60 N at shaft end *n > 6000 rpm:* axial 10 N/radial 20 N at shaft end					*n ≤ 6000 rpm:* axial 40 N/radial 60 N at shaft end *n > 6000 rpm:* axial 10 N/radial 20 N at shaft end					*n ≤ 6000 rpm:* axial 40 N/radial 60 N at shaft end *n > 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	*U_P = 5 V:* 100 °C *U_P = 10 to 30 V:* 85 °C		60 °C		100 °C	*U_P = 5 V:* 100 °C *U_P = 10 to 30 V:* 85 °C		60 °C	70 °C	100 °C	70 °C	100 °C	
Min. operating temperature	*Flange socket or fixed cable:* –40 °C *Moving cable:* –10 °C			–20 °C		*Flange socket or fixed cable:* –40 °C *Moving cable:* –10 °C			–20 °C		*Flange socket or fixed cable:* –40 °C *Moving cable:* –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/s^2 on flange socket version