Universal Type 5000

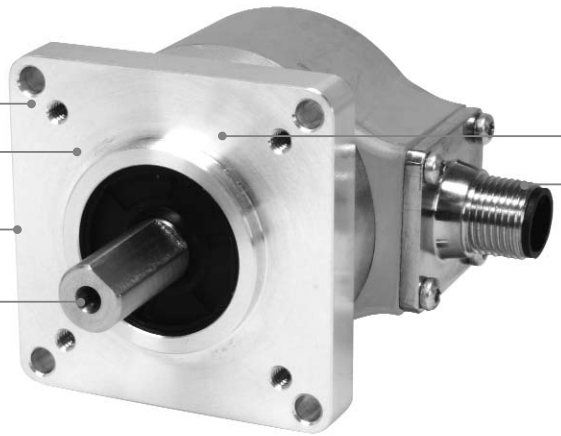
- **Compact: with a 50 mm format performs just like an encoder of the industry-standard format.**
- **Versatile: shaft up to 12 mm, large range of mounting and connection solutions incl. M12, versions according US standard, up to 3600 ppr**
- **Tough: IP 67, up to -30 °C working temperature, sturdy bearings**

Wide temperature range -30 ... +85 °C

Up to IP 67

Broad input voltage range 5 ...30 V DC

Shaft up to 12 mm diameter also in inch dimensions



sturdy design

also with M12 connection

Mechanical characteristics:

Speed without shaft sealing[1]:	max. 12000 min^{-1}
Speed with shaft sealing[1]:	max. 6000 min^{-1}
Rotor moment of inertia:	approx. 1,8 x 10^{-6} kgm^2
Starting torque:	< 0,01 Nm without shaft sealing < 0,05 Nm with shaft sealing
Radial load capacity shaft:	80 N
Axial load capacity shaft::	40 N
Weight:	ca. 0,4 kg
Protection acc. to EN 60 529:	IP 65 without shaft sealing IP 67 with shaft sealing
Working temperature:	-30 °C ... +85 °C
Shaft:	stainless steel, h8
Shock resistance acc. to DIN-IEC 68-2-27:	2500 m/s^2, 6 ms
Vibration resistance to DIN-IEC 68-2-6:	100 m/s^2, 10...2000 Hz

[1] for continuous operation max. 3000 min^{-1}

Pulse rates available at a short notice:

100, **200**, 256, **360**, **500**, 512, 800, **1000**, **1024**, 1200, 2000, 2048, **2500**, **3600**

Other pulse rates on request

Electrical characteristics:

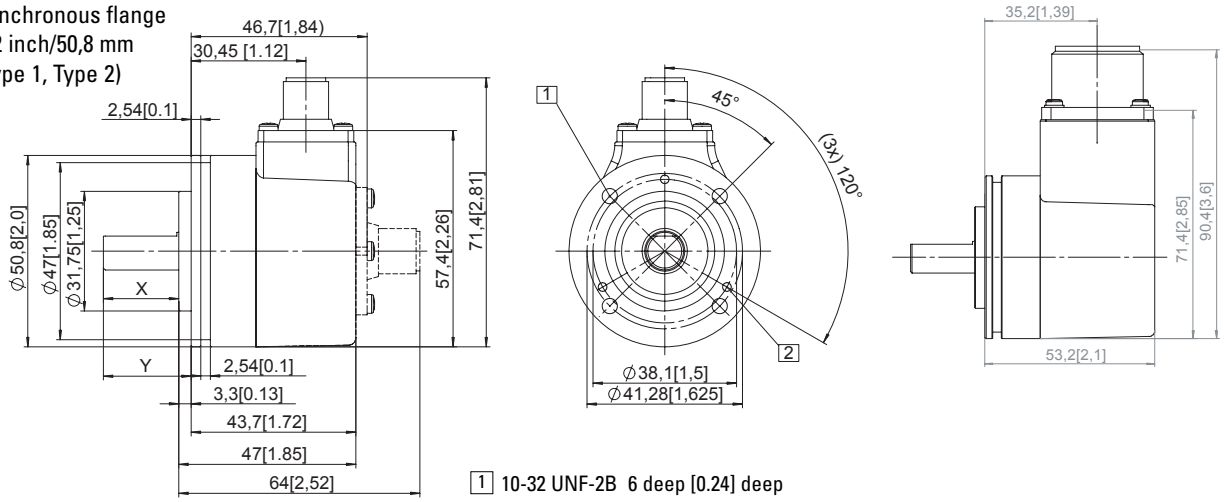
Output circuit:	RS 422 (TTL compatible)	RS 422 (TTL compatible)	OpenCollector (7273)	Push-Pull (7272)
Supply voltage:	5 ... 30 V DC	5 V ±5%	5 ... 30 V DC	5 ... 30 V DC
Power consumption (no load)	typ. 40 mA /	typ. 40 mA	typ. 50 mA/	typ. 50 mA
with inverted signal:	max. 90 mA	max. 90 mA	max.100 mA	max. 100 mA
Permissible load/channel:	max. ±20 mA	max. ±20 mA	max. ±20 mA	max. ±20 mA
Pulse frequency:	max. 300 kHz	max. 300 kHz	max. 300 kHz[5]	max. 300 kHz[3]
Signal level high:	min. 2,5 V	min. 2,5 V	–[4]	min. UB-2,0 V
Signal level low:	max. 0,5 V	max. 0,5 V	max. o-5 V [4]	max. 0,5 V
Rise time t_r	max. 200 ns	max. 200 ns	max. 1 µs[5]	max. 1 µs
Fall time t_f	max. 200 ns	max. 200 ns	max. 1 µs[5]	max. 1 µs
Short circuit proof outputs[1]:	yes[2]	yes[2]	yes	yes
Reverse connection protection at U_B:	yes	no	no	no
Conforms to CE requirements acc. to DIN-IEC 68-2-27, DIN-IEC 68-2-6, EN 60 529, EN 61 000-6-2, EN 61 000-6-3, EN 61000-6-4				

1) When supply voltage correctly applied
2) Only one channel at a time:
(when UB=5 V, short-circuit to channel, 0 V, or +UB is permitted.)
(when UB=5-30 V, short-circuit to channel or 0 V is permitted.)
3) cable length up to 30 m
4) depends on pull-down resistor
5) depends on pull-down resistor and cable length

Universal Type 5000

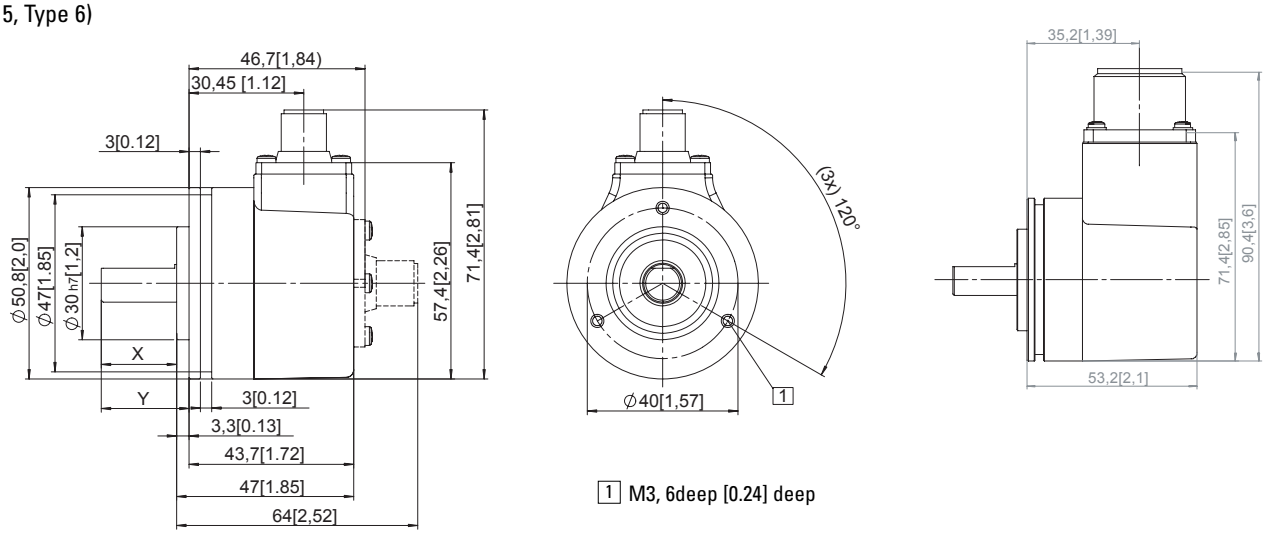
Dimensions:

Synchronous flange
ø 2 inch/50,8 mm
(Type 1, Type 2)



1 10-32 UNF-2B 6 deep [0.24] deep
2 4-40 UNC-2B 6 deep [0.24] deep

Synchronous flange ø 2 inch/50,8 mm (5, 6)
with metric dimensions (thread and flange)
(Type 5, Type 6)



1 M3, 6deep [0.24] deep

Mounting advice:

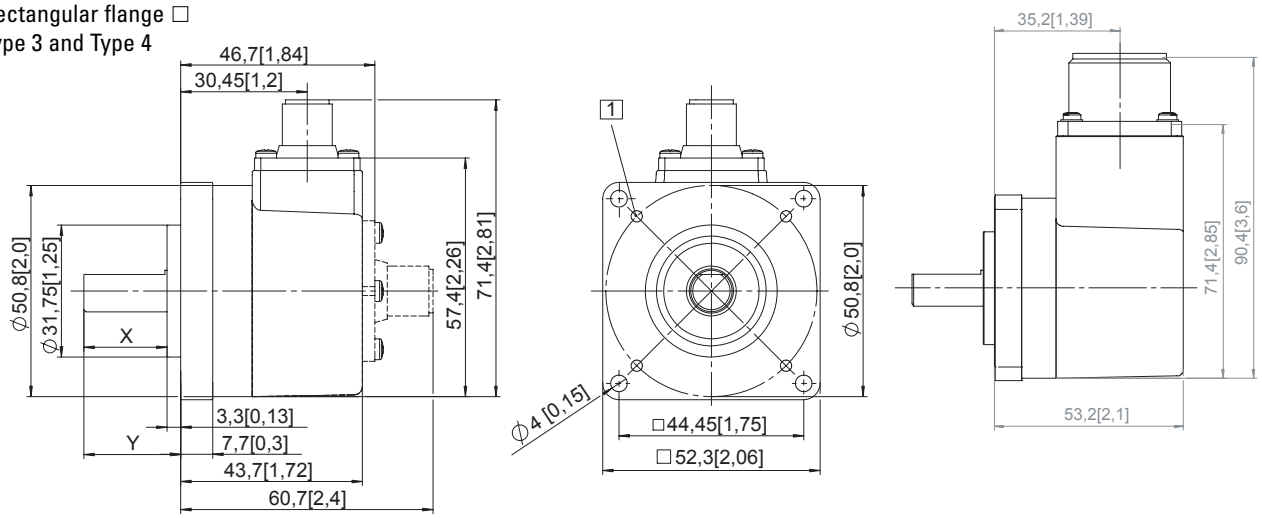
Do not connect encoder and drive rigidly to one another at shafts and flanges! Always use couplings to prevent shaft overload (see accessories chapter).

Shaft versions

Order code for shaft	Shaft	length **X**	length **Y**
1	ø 6 mm	10 mm	13,3 mm
2	ø 1/4 "	15,7 mm	3/4"
3	ø 10 mm	20 mm	23,3 mm
4	ø 3/8 "	15,7 mm	3/4"
5	ø 12 mm	20 mm	23,3 m
6	ø 8 mm	15 mm	18,3 mm

Universal Type 5000

Rectangular flange □
Type 3 and Type 4



1 6-32 UNC-2B 5,5 deep [0.21] deep

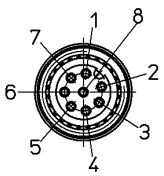
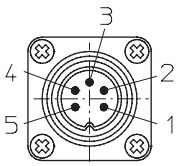
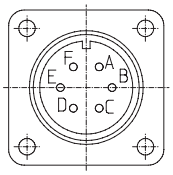
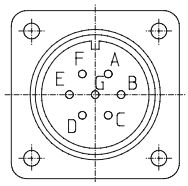
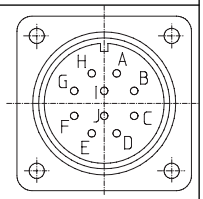
Terminal assignment:

Signal:	0 V GND	+U_B	0 V Sens	+Ub Sens	A	$\overline{A}$	B	$\overline{B}$	Z	$\overline{Z}$	Shield
M23 , 12 pin connector, Pin:	10	12	11	2	5	6	8	1	3	4	–[1)]
M12, 8 pin connector, Pin:	1	2			3	4	5	6	7	8	–[1)]
Military, 10 pin connector, Pin:	F	D		E	A	G	B	H	C	I	J[1)]
Military, 7pin connector, Pin:	F	D		E	A	–	B	–	C	–	G[1)]
Military, 6 pin connector, Pin:	A	B			E	–	D	–	C	–	–[1)]
Cable colour:	WH	BN	GY PK	RD BU	GN	YE	GY	PK	BU	RD	Shield

1)shield is attached to connector housing

Insulate unused outputs before initial startup

Top view of mating side, male contact base:

Type	8 pin M12 connector	12 pin M23 connector	MIL connector 6 pin	7-pin	10 pin
View					
Order code:	8.5000.XXX**3**.XXXX 8.5000.XXX**4**.XXXX	8.5000.XXX**7**.XXXX 8.5000.XXX**8**.XXXX	8.5000.XXX**9**.XXXX	8.5000.XXX**W**.XXXX	8.5000.XXX**Y**.XXXX
Corresponding mating connector:	05.CMB-8181-0	8.000.5012.0000	–	8.4000.5052.0000	8.0000.5062.0000

Universal Type 5000

Order code **8.5000.XXXX.XXXX**

Range

Flange
- 1 = Synchronous flange ø 2 inch, 50,8 IP 67
- **2 = Synchronous flange ø 2 inch, 50,8 IP 65**
- **3 = Rectangular flange □ 2,06 inch, 52,3 IP67**
- **4 = Rectangular flange □ 2,06 inch, 52,3 IP65**
- **5 = Synchronous flange, metric, 50,8, IP67**
- **6 = Synchronous flange, metric, 50,8, IP65**

Shaft (ø x L)
- **1 = ø 6 mm**
- 2 = ø 1/4 inch
- **3 = ø 10 mm**
- 4 = ø 3/8 inch
- 5 = ø 12 mm
- 6 = ø 8 mm

Type of connection and supply voltage
- 1 = RS 422 (with inverted signal) 5 ... 30 V supply voltage
- **2 = Push-pull (7272 witn inverted signal) 5 ... 30 V supply voltage**
- 3 = OpenCollector (7273 with inverted signals) 5 ... 30 V supply voltage
- 4 = RS 422 (with inverted signal) 5 V supply voltage

Pulse rate
(e.g.. 100 pulses => 0100)

Type of connection
- 1 = Cable axial (1 m PVC cable)
- **2 = Cable radial (1 m PVC cable)**
- 3 = axial 8 pin M12 plug without mating connector
- **4 = radial 8 pin M12 plug without mating connector**
- 7 = axial 12 pin M23 plug without mating connector
- **8 = radial 12 pin M12 plug wihtout mating connector**
- 9 = 6 pin plug MIL.-specified
- W = 7 pin plug MIL.-specified
- Y = 10 pin plug MIL.-specified