

Magnetic incremental encoders MIRC300, 305, 310, 315, 320 and 325

MIRC30x – synchro flange, external diameter of the shaft 6 mm
MIRC31x – clamping flange, external diameter of the shaft 10 mm
MIRC32x – stator coupling, blind hollow shaft internal diameter 12 mm

The magnetic incremental rotary encoders type MIRC300, 305, 310, 315, 320 and 325 working on magnetic Hall Effect principle. The encoder converts rotary motion to electrical incremental signals. Electrical signals provide information of bilateral position of two mechanical parts, angle turn or rotary motion. A typical use is in conjunction with digital control system or drivers for control of the electric motors.



Type identification

MIRC3 x x / xxxx xx x

- OPTION (example)**
P – Pinion stuck to the shaft
- OUTLET**
PA – Cable 1 m axial
PB – Cable 1 m radial
KA – Connector type CONTACT axial
KB – Connector type CONTACT radial (longer cable on request)
- NUMBER OF IMPULSES (PERIODS) PER ROTATION**
 from 1 to 128 after one pulse, further 200, 250, 256, 400, 500, 512, 1024, 2048 with one zero impulse per rotation.
- OUTLETS IDENTIFICATION**

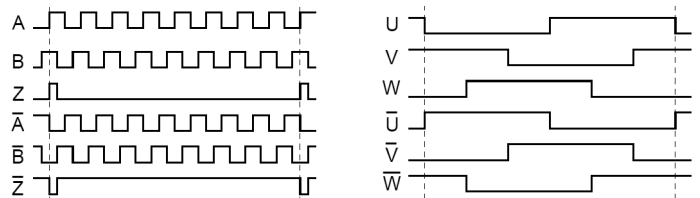
Supply voltage	Outlet
0 – +10 ÷ +30 V	HTL line driver
5 – +5 V	line driver
- DIAMETER OF SHAFTS**
0 – external dia. of the shaft 6 mm
1 – external dia. of the shaft 10 mm
2 – internal dia. of the shaft 12 mm (other diameter on request)
- TYPE OF ENCODER**
3 – magnetic incremental encoder type MIRC3xx

Mechanical data and working conditions

Rotational speed max.	10000 min. ⁻¹
Angular acceleration max.	40000 rad.s ⁻²
Moment of inertia of mechanical parts max.	10 g.cm ² ± 10 %
Vibration according to FCČSN345791	10g _n (10 to 2000 Hz)
Shock max.	50g _n (100 ms)
Shaft loads MIRC300, 305 / MIRC 310, 315, 320, 325	
– axial max.	20/40 N
– radial max.	50/60 N
Working temperature	– 25° to + 80° C
Humidity relative / absolute	max. 95 % / max. 40g.m ⁻³
Atmosphere (without aggressive substances)	73,3 to 126,6 kPa
Type of protection	IP65
Weight MIRC300, 305 / MIRC310, 315, 320, 325	ca. 0,25 / 0,35 kg
Length cable max.	50 m

Output signals

MIRC300, 305 / MIRC310, 315 / MIRC320, 325



ABZ differential incremental signals

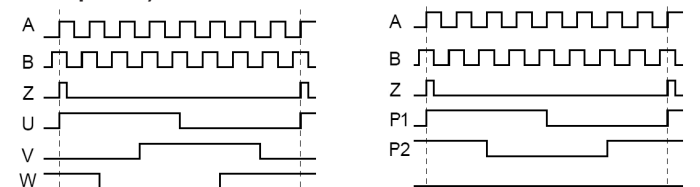
UVW differential commutation signals

Number of incremental impulses (periods) per rotation: from 1 to 128 after one pulse, further 200, 250, 256, 400, 500, 512, 1024, 2048 with one zero impulse per rotation.

Resolution in positions = Number impulses per rotation (lines) x 4.

MIRC305 / MIRC315 / MIRC325

only and into resolution 1024 impulses (without 200, 250, 400 and 500 impulses)



ABZ incremental / UVW commutation

ABZ incremental signals / period counter

Technical data

ELECTRICAL DATE / TYPE	MIRC300, 310, 320	MIRC305, 315, 325
Impulses (periods) per rotation	1 to 2048	
Resolution (positions per revolution) = impulses x 4	Up to 8192	
Supply voltage max. U _N (V)	from +10 to +30	+ 5 ± 5%
Supply current max. I _N (mA)	60@30V	50
Output frequency max. F _O (kHz)	200	
Output max. I _O (mA)	± 25	± 20
Output	HTL line driver	line driver (RS 422)

Assembly

The MIRC30x encoder is installed into appropriate equipment using 3xM4 screws or a groove. The position of the shaft is explicitly determined by a fitted diameter of 50h7. The MIRC31x encoders are installed using 3xM3

continued on next page

Description of connection elements MIRC300, 305, 310, 315, 320 and 325

Assembly –
continued from previous page

Pin connector type CONTACT	Colors of connection cable	Significance			
		Incremental	Commutation	Incr./commu.t.	Incr./counter
1	Grey	B non	V non	V	P2
2	Pink	Sensor + 10 to + 30 V for MIRC300, 310 and 320 Sensor + 5 for MIRC305, 315 and 325			
3	Blue	Z	W	Z	Z
4	Violet	Z non	W non	W	NC
5	Yellow	A	U	A	A
6	White	A non	U non	U	P1
7	–	NC			
8	Green	B	V	B	B
9	Shield	Shield			
10	Black	GND			
11	Brown	Sensor 0 V			
12	Red	$U_N + 10 V$ to + 30 V for MIRC300, 310 and 320 $V_{cc} + 5 V$ for MIRC305, 315 and 325			

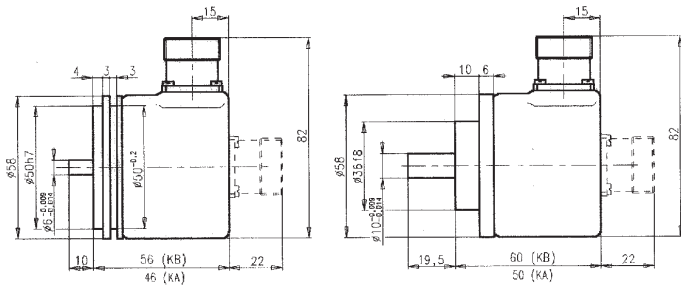
screws and the position of the shaft is explicitly determined by a diameter of 36f8. It is recommended to use appropriate homokinetic coupling (see the catalogue sheet „Accessories“). The encoder MIRC320 or MIRC325 with stationary coupling is installed on the shaft of appropriate equipment and tightened by two imbus screws M4. Afterwards the encoder is turned to the required position and the stationary coupling is fixed by two or four (optimal) screws M3. The connection has to be designed so as to avoid exceeding the maximum admissible radial or axial load applied to the shaft and it is necessary to keep the connection aligned. The cable of the MIRC3xx encoder must

be fastened so as to avoid stress on the encoder by its own weight. In wet environments with running or splashing water it is recommended not to position the MIRC3xx encoders with the shaft pointing upwards. When temperature is less than $-5^{\circ}C$ cable must be fixed.

Dimensioned drawing

MIRC300, 305

MIRC310, 315



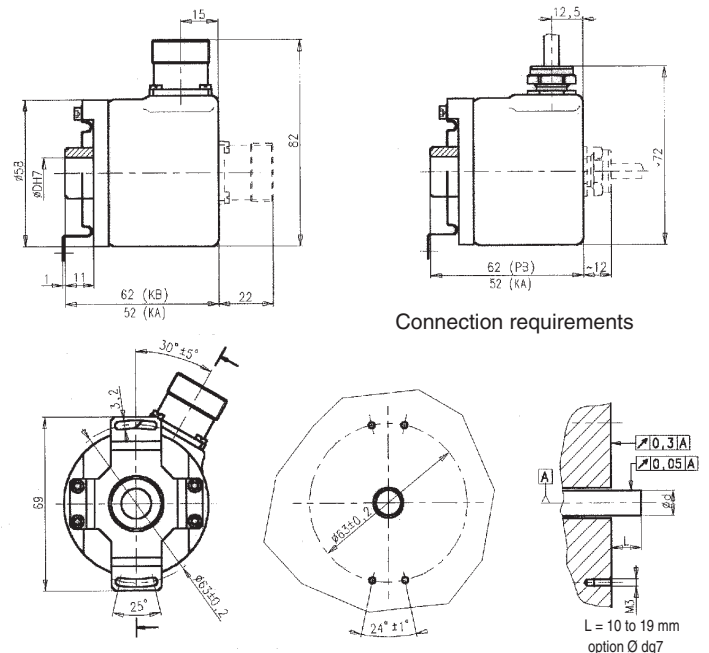
How to order?

Please indicate encoder type, number of impulses per rotation, outlet, number of pieces, delivery term and other non-standard features. Connecting cable and homokinetic diaphragm couplings can be ordered as well [see Accessories catalogue list].

Example

20 pcs MIRC300/1024KB and 20 pcs coupling SV9 and 20 pcs encoder holder. Delivery term – two weeks.

MIRC320, 325



Connection requirements