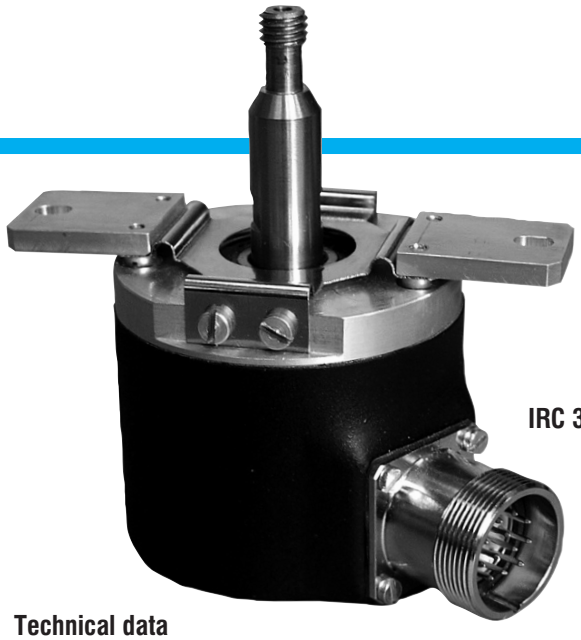
Incremental rotary encoders IRC330 – 335

IRC330 – 335 – outer shaft ∅ 12 mm ended with screw thread M8 x 5,5mm. The shaft shape can be specified according to the customer' s requirements.

Incremental rotary encoders **IRC with LED as the light source** in the standard industrial version transform rotating motion in electric signals by means of photoelectric raster scanning of two glass elements (stator and rotor). They are assigned to mediate electric information about the mutual position of two mechanic units, the angle turn or rotating motions. IRC encoders are used mostly in connection with number indications or control systems. They can be used also in other devices, where high preciseness and reliability of measuring is required.



IRC 33x

Type marking

IRC 3 x x / xxxx xx x

SUBSTANDARD (example)
M – frost resistant -25° to +60°C
D – optical indication of reset pulse by means of LED (KB, PB)

OUTLET
PA – cable 1 m, axial
PB – cable 1 m, side
KA – connector CONTACT 20.10.10. AA, axial
KB – connector CONTACT 20.10.10. AA, radial
KKA – cable 1 m with connector CONTACT 20.10.50.AC, axial
KKB – cable 1 m with connector CONTACT 20.10.50.AC, radial

NUMBER OF IMPULSES PER ROTATION
100, 200, 250, 360, 500, 512, 1000, 1024, 1250, 1500, 2048, 2500, 3600, 4096, 5000 and 6000 with one zero impulse per rotation.

OUTLETS IDENTIFICATION

	Supply voltage	Output
0	+10 ÷ +30 V	push/pull
1	+10 ÷ +30 V	OC NPN
2	+10 ÷ +30 V	OC PNP
3	+ 5 V	OC NPN
4	+ 5 V	OC PNP
5	+ 5 V	line driver

MECHANICAL DESIGN OF SCHAFTS
3 – outer shaft 12 mm
(which ends e.g. with M8x5,5 mm winding – shaft shape can be specified acc. to customer's requirements)

TYPE OF ENCODER
3 – IRC3xx with LED as the light source

Technical data

Rotation		10000 min.$^{-1}$
Angular		40000 rad.s^{-2}
Inertia moment of mechanic parts		20 g.cm^{-2} ±10 %
Shaft load IRC	– axial 330 - 335	40 N max.
	– radial 330 - 335	60 N max.
Type of protection		IP65
Weight max.		0,35 kg

Electrical data	IRC 330	IRC 331	IRC 332	IRC 333	IRC 334	IRC 335
Supply voltage U_N [V]	10-30	10-30	10-30	5±5%	5±5%	5±5%
Supply voltage OC U_O [V]	–	5-30	U_N	5-30	U_N	–
Supply curent max. I_N [mA]	50/30V	50/30V	50/30V	100	100	100
Output frequency max. F_O [kHz]	150	100	100	100	100	200
Output max. I_O [mA]	±25	25	-25	25	-25	±20
Output signals level						
U_{OH} [V] U_N=30V, I_{ON}=10mA	U_N-3	–	>U_N-1	–	>U_N-1	>2.5
U_{OL} [V] U_N=U_O=30V, I_{OL}=-10mA	<1,2	<1	–	<1	–	<0,4
I_{OH} [µA] U_N=U_O=30V	–	<-6	–	<-6	–	–
I_{OL} [µA] U_N=U_O=30V	–	–	<6	–	<6	–
Length cable max. [m]	100	20	20	20	20	50

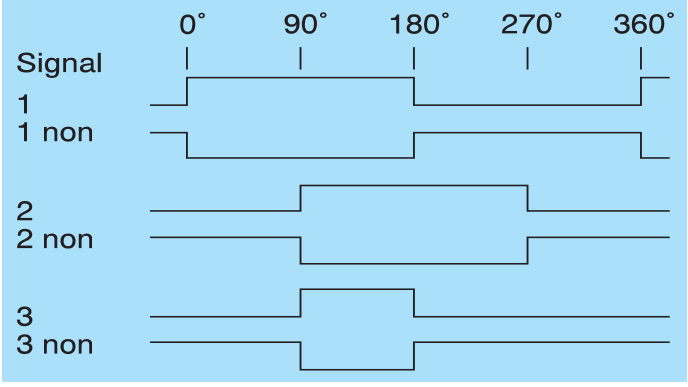
Working conditions

Vibration acc. to FCČSN345791		10 g_n (10 ÷ 2000 Hz)
Schock impulse	50 g_n (100 ms)	
Operating temperature	– standard	0° ÷ +60°C
	– *model M*	–25° ÷ +60°C
Humidity	– relative	95 % max.
	– absolute	40 g.m^{-3} max.

Atmosphere free of aggressive substances.

Output signals IRC 330 – 335

2 basic signals (1, 2) moved by 90°el., 1 zero pulse (3) and their negation. For frequecies higher than 100kHz zero pulse is not quaranteed.



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Description of connection elements IRC330 – 335

Conector PIN	Color of out. cable	Significance IRC330 – 332	IRC333 – 335
1	Grey	Signal 2 non	
2	Rose	Sensor +10 ÷ +30 V	Sensor +5 V
3	Blue	Signal 3	
4	Violet	Signal 3 non	
5	Yellow	Signal 1	
6	White	Signal 1 non	
7	—	NC	
8	Green	Signal 2	
9	Shield	Shield	
10	Black	GND	
11	Brown	Sensor 0 V	
12	Red	U_n +10 ÷ +30 V	V_{cc} +5 V

Note: Function Sensor is used with a supply resource enabling balancing the decrease of voltage on the cable as the feedback. If Sensor function is not used we recommend to connect PIN 2 to PIN 12 and PIN 10 to PIN 11.

Assembly

IRC330 – 335 encoders are placed into the shaft of the respective equipment and fastened by means of M8 x 5,5 mm screw thread on the encoder shaft, which must be secured by means of cement, e.g. AN 302 – 22 (the encoder is beared by ∅ 12 mm, the torsion moment is transmitted by means 60° cone). Hereafter the encoder shall be turned into the position required and fastened by 2 M4 screws on the 80 – 84 mm span of the stationary rule coupling.

The connection for IRC330 – 335 encoders must be designed in order to prevent enhancement of the value of the maximum allowed radial or axial shaft load and at the same time, the concentricity of the connection must be kept.

In wet environment with flowing or dropping liquid it is not recommended to place the IRC330 – 335 encoders with the shaft up.

Considering that sensitive electrostatic parts have been used we recommend to connect encoders without a power supply and to strictly follow the rules for work with electrostatic sensitive equipment.

When temperature is less then –5°C cable must be fixed.

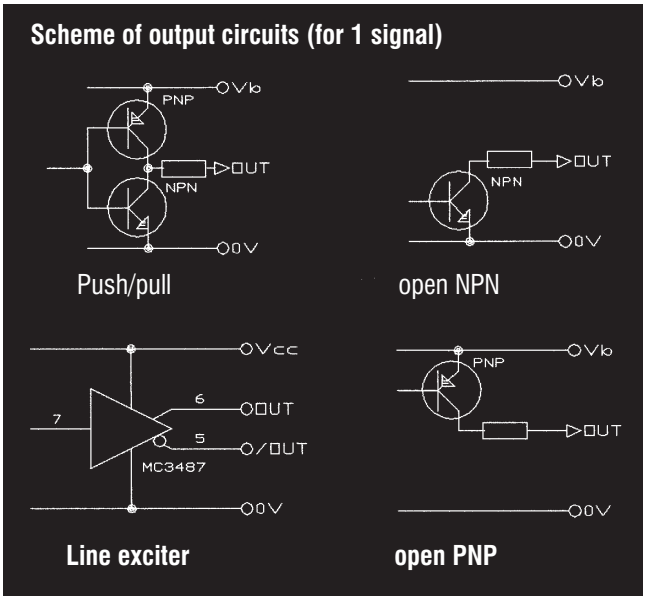
How to order?

Following data shall be given in the order: number of pieces, encoder name and type, number of impulses per revolution, outlet design, eventually non-standard design as well as the term of delivery. Furthermore it is possible to order the connecting cable, connector counterpart, cable plug and homokinetic coupling (see Catalogue, page Accessories).

Example

We order 20 pieces of IRC 335 / 1024 KA M. IRC 335 encoder with 1024 impulses per revolution and axis connector to be delivered within 3 weeks.

Scheme of output circuits (for 1 signal)



Dimensioned drawing IRC33x