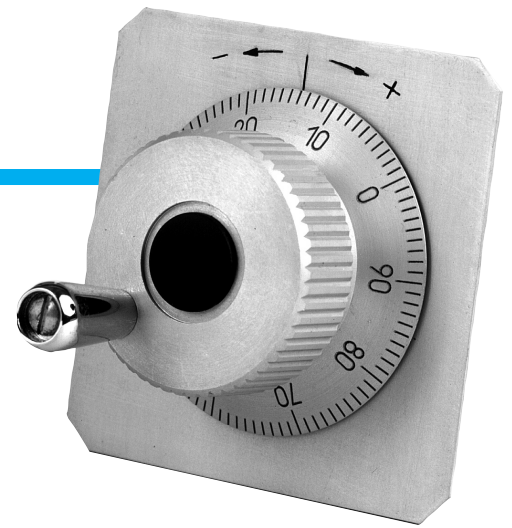# Incremental hand wheel
IRC510A, 515A, 516A, 517A and 519A

The manual incremental hand wheel IRC510A, 515A, 516A, 517A and 519A in standard industrial configuration converts rotary movement, which is manually entered using the hand wheel with nonius, by means of photoelectric sensing, to sequence of electric rectangular pulses in the signals A and B (or in their negations) each other shifted of 90° electrical. Each position is locked.

This hand wheel is designed for placement into panels or portable device for manual control and entering information, particularly for NC and CNC machines.
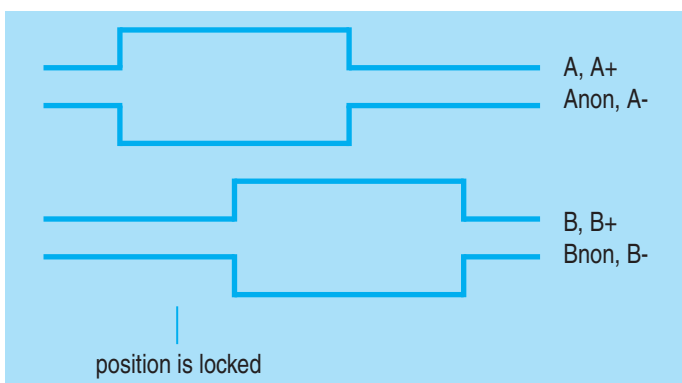
Technical Specification	IRC510A	IRC515A	IRC516A	IRC517A	IRC519A
Outlet	push/pull	TTL	Line Driver RS422	1 V pp kompatible[1]	Line Driver RS422
Suply voltageí U_N [V]	+ 10 ÷ + 30	+ 5 ± 10%	+ 5 ± 10%	+ 5 ± 10%	+ 10 ÷ + 30
Encoders consuption I_N [mA]	50@/30V	max. 40	max. 60	max. 100	40@/30V
Max. load of outputs I_0 [mA]	± 25	+ 5 / – 1	± 20	difer. $Z_0 = 120\ \Omega$[2]	± 20
Max. cable lenght [m]	100	5	50	150	50
El. signal output levels: U_{OH} [V]	U_{n-3} (– 10 mA)	> 2,4 V (– 40 μA)	> 2,5 V (– 10mA)	2 ± 0,1[3]	> 2,5 V (– 10 mA)
U_{OL} [V]	= < 1,2 (10 mA)	< 0,4 V (3,2 mA)	< 0,4 V (10mA)	1,5 ± 0,1[3]	< 0,4 V (10mA)
Operation temperature [°C]	– 20 ÷ + 60	– 20 ÷ + 60	0 ÷ + 60		
Signals	A, B, Anon, Bnon	A, B	A, B, Anon, Bnon	A+, B+, A–, B–	A, B, Anon, Bnon
Numper of pulses	100 per each trace				
Max. vibration according to FCČSN 345791	2 G (0 – 60 Hz)				
Max. rotation	200 m⁻¹				
Max. shaft loads axial/radial	20/40 N				
Protection	IP 54				

Assenbly

Removed the hand wheel center cap, allow the screw chuck and removed wheel, dismount the three screws and remove the front panel. The panel is prepared by three holes pr. 2.7 on the pitch circle diameter. 45 + 0.1 and the center hole diameter. 14 mm. The encoder is placed on the inside front panel on the outside and bolted with the dismounted screws M2, 5 After wheel is mounted and electrically connected.

With respect to use of electrostatic sensing parts, we recommend to connect the encoder without voltage and complying rules for handling with electrostatic sensitive equipment.

Sequence signals by turning right

A, A+
Anon, A-

B, B+
Bnon, B-

position is locked

Output signals

Two basic signals (A, B, and A +, B +) moved by 90⁰ electrical and their negation (according to the encoder type).

Changes in technical parameters reserved

[1] A square (quadrature) signal on the levels for entries 1 V pp. Cannot be interpolated. [2] Loading impedance between signal + and signal –, see the recommended wiring IRC307. [3] Amplitude of the differential signal between signal + and signal – : 0,6 ÷ 1,2 V pp (Zo = 120 Ω)
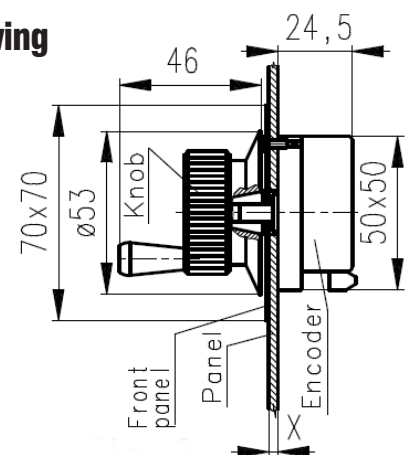
Dimensional drawing

IRC510A

IRC515A

IRC516A

IRC517A

IRC519A

Data for order

State in the order number of pieces, name and type of the encoder, number of pulses per revolution and delivery date.

Example:

We order 20 pcs of **IRC515A/100**. The encoder IRC 515A with 100 pulses per revolution and delivery in four weeks.