Zero Sequence Current Transformers - I0

- Full range of sizes and shapes
- Devided and non-devided core versions
- TEST — Test winding
- 1:75 / 1:100 / 1:120 — Standard gear ratio 1:100 (custom versions available)

The high accuracy of very small (100mA) earth-fault current measurement are the condition of reliable and sensitive operation the earth-fault protections each producers.

Energotest's earth-fault current transformers type I0 just ensures the high accuracy of grounding current measurement in the MV networks.

ENERGOTEST

We offer fourteen types Ferranti transformers for any type cables and busbars. There are non-divided (N) and divided (D) core with in seven versions (I-VII) the size and shape combinations with different location measurement terminals.

Depending on the needs of our clients we offer following types of Ferranti transformers:

Non-divided core (N):

I0-85-N - singe 3 phase cable, diameter up to 85 mm,
I0-100-N - singe 3 phase cable, diameter up to 100 mm,
I0-280-N - four cables, diameter 3x240 mm^2,
I0-480-N - busbar up to 480 mm,
I0-695-N - busbar up to 695 mm,
I0-110x250-N - two cables, diameter 3x240 mm^2,
I0-125x47-N - two expanded cables, diameter 3x240 mm^2,
I0-70x400-N - parallel cables or 3 single phase cables, diameter up to 70mm.

Divided core (D):

I0-85-D - singe 3 phase cable, diameter up to 80 mm,
I0-100-D - one cable, diameter 3x240 mm^2,
I0-135-D - one cable, diameter 3x500 mm^2,
I0-110x250-D - two cables, diameter 3x240 mm^2,
I0-125x470-D - two cables, diameter 3x240 mm^2,
I0-250x450-D - four cables, diameter 3x240 mm^2 or busbar.

Technical data of transformers are included in the table below. Versions (sizes, shapes and location of terminals) are presented on drawings 1 to 7.

Basic sizes and weight

Type	Version	Dimensions [mm] A	A1	B	B1	C	C1	D	D1	E	Weight [kg] m.
I0-85-N	I	85	-	170	-	55	65	200	223	10	3,5
I0-100-N	IV	100	-	214	230	55	-	264	280	10	5,0
I0-280-N	IV	280	-	400	415	55	-	460	480	10	11,0
I0-480-N	I	480	-	600	-	52	-	*	-	-	16,0
I0-695-N	IV	695	-	845	-	55	78	*	-	-	16,0
I0-110x250-N	II	110	250	365	230	55	70	420	240	10	8,0
I0-125x470-N	II	125	470	580	235	53	73	*	-	-	10,5
I0-70x400-N	VI	70	400	535	202	52	66	*	-	-	10,5
I0-85-D	III	85	-	170	190	55	65	200	223	10	3,5
I0-100-D	III	100	-	220	220	55	72	260	290	10	5,0
I0-135-D	III	135	-	260	270	55	72	300	300	10	5,0
I0-110x250-D	VII	110	250	365	230	55	70	410	440	10	8,5
I0-125x470-D	VII	125	470	580	235	53	73	*	-	-	11,0
I0-250x450-D	V	250	450	562	361	52	74	*	-	10	14,5

* The transformers are equipped with handles overlay on housing

	Measurement winding terminals	Auxaliary winding terminals
4 terminals system:	k1 - l1	k2 - l2
6 terminals system:	k1 – l1, k2-l2 - closed	k3 – l3

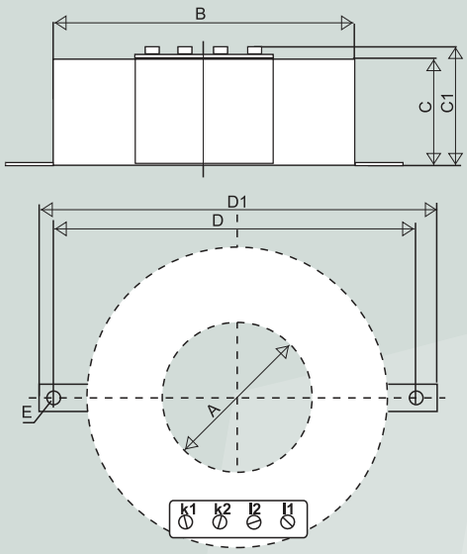


Fig.1 Vesion I

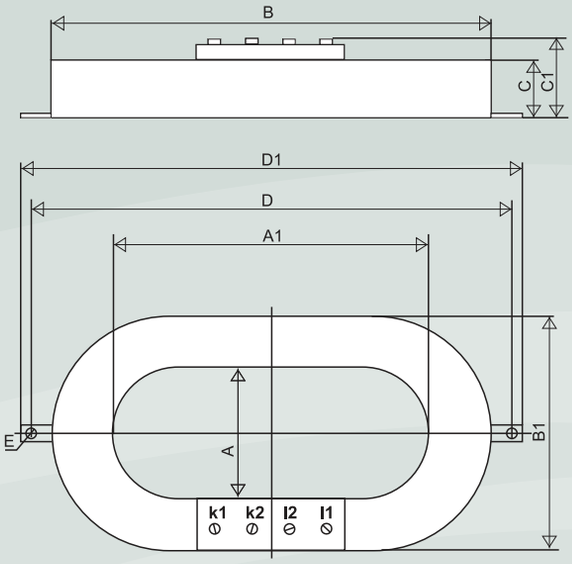


Fig.2 Version II

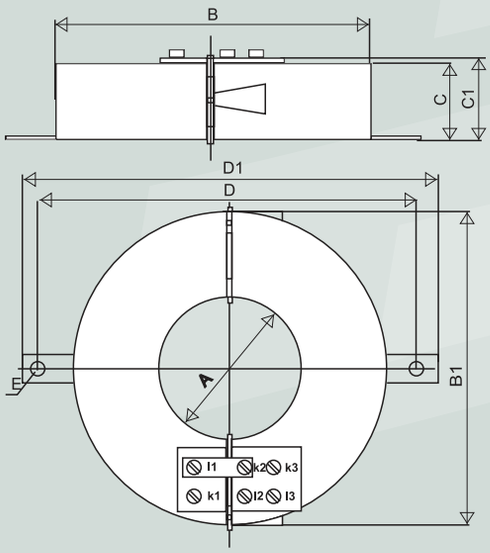


Fig.3 Version III

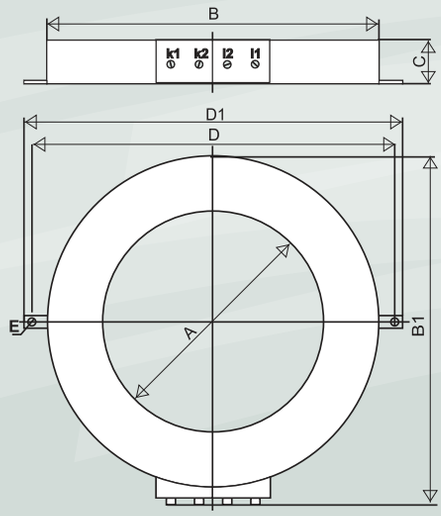


Fig.4 Version IV

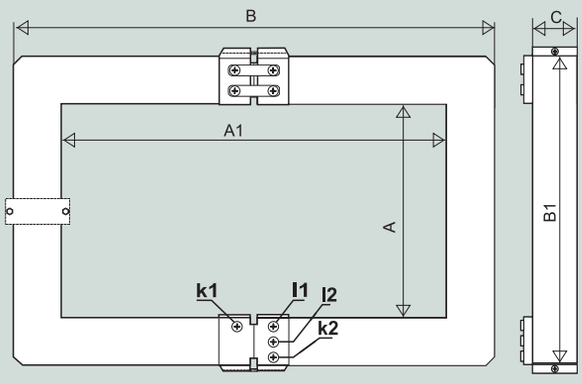


Fig.5 Version V

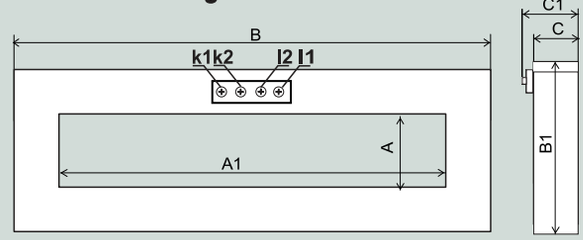


Fig.6 Version VI

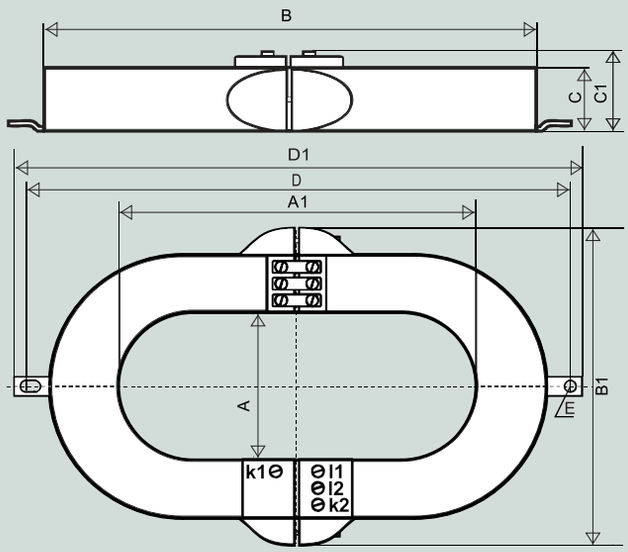


Fig.7 Version VII

Technical characteristics

Measurement windings	100 windings *
Auxaliary windings	10 windings
Gear ratio	1:100 *
Measurement errors	see characteristics
Dynamic resistance	250 kA (effective)
Thermal resistance – 1 sek.	100 kA (effective)
Insulation	≥200 MΩ
Secondary windings insulation	3 kV
Climate data:	
Temperature of transport. and operation **	-25...+70 °C
relative humidity at ambient temperature +20 °C	up to 90%
Dimensions	See table (page 2) and drawings (page 3)

* Possible other gears ratio: 50, 75 or 120
**In case of complete core transformers, special version with operation temperature starting from -55°C.

Transformers are designed to operation with earth fault protection, whose input circuits have a load impedance no higher than

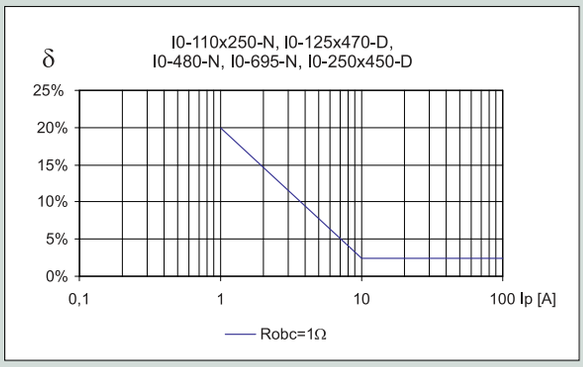
1Ω– transformers: I0-110x250-N, I0-110x250-D, I0-125x470-N I0-125x470-D, I0-280-N, I0-695-N, I0-480-N, I0-250x450-D, I0-70x400-N

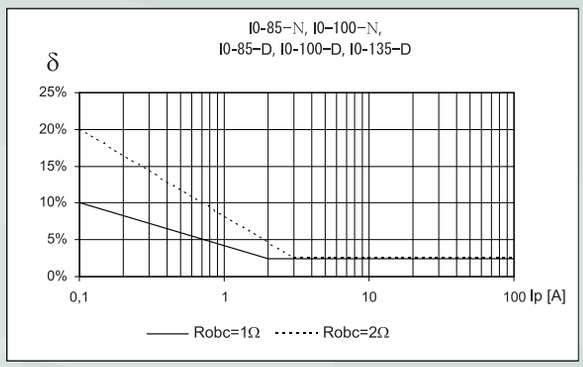
2Ω – transformers: I0-85-N, I0-85-D, I0-100-N, I0-100-D, I0-135-D

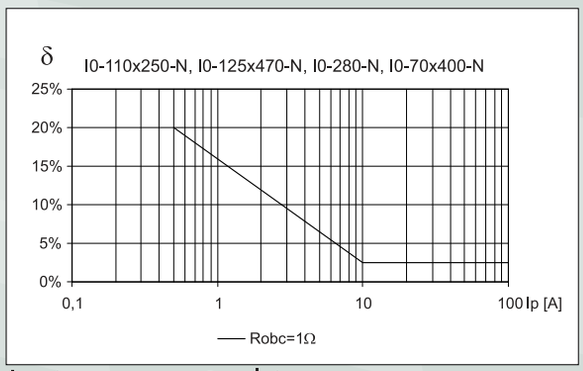
Variety of shapes and sizes of I0 transformers makes the possibility apply their in any MV power supply system with insulated or grounded zero point. They can work with any types earth fault protection.

A dozen thousand I0 earth faults operate reliably on MV cable and busbar networks in power industry and in many branches of industry at Poland and abroad.

Error measurement characteristic of current Ip







Ip- primary current δ– relative error

!Advantages:

-Possibility of measuring earth fault current in medium voltage networks on different types of cable and busbars,

-High accuracy of primary current measurements from 100 mA,

-Additional auxiliary winding for testing:

-Possibility to cooperate with earth fault protection of any type,

-Reliability of operation,

-Easy assembling

Energotest sp. z o.o.
ul. Chorzowska 44B, 44-100 Gliwice
tel.: +48 32 270 45 18; fax: +48 32 270 45 17
sekretariat@energotest.com.pl
www.energotest.com.pl

Wydanie nr 1.01.03.07.17

ENERGOTEST