

DISTRIBUTION SOLUTIONS

# Outdoor LV current transformers

types: KOKU, IHDA, IMT







# Index

	<b>Cable current transformers</b>
<b>4 – 8</b>	<b>KOKU</b>
4	Technical data
4	Ordering data
6	Dimensional drawings
<b>9 – 10</b>	<b>IHDA</b>
9	Technical data
9	Ordering data
10	Dimensional drawings
	<b>Special current transformers</b>
<b>11 – 13</b>	<b>IMT</b>
12	Technical data
13	Dimensional drawings
<b>14</b>	<b>Note</b>

# Cable current transformers

## type KOKU



KOKU\_ current transformers are suitable for measuring phase currents. A busbar or cable serves as the primary conductor. Series KOKU current transformers can also be used for measuring the phase current at voltages higher than 0.72 kV (for KOKU 072) or 1.2 kV (for KOKU 1), if the insulation of the primary conductor satisfies the requirements of the respective standards for the operating voltage. The secondary winding and ring shaped iron core are cast in resin which has good electrical and mechanical properties.

Special type KOKU current transformer is KOKU 072 G\_. It is dedicated to work with the SF6-insulated pole mounted switch disconnector type SECTOS. The dimensions of the KOKU 072 G\_ are adjusted to the size of the SECTOS bushings. All transformers meet the requirements of the relevant standard i.e. the IEC 61869-2.

### Ordering data

The order should contain the following data:

- Type of current transformer
- Rated primary current/rated secondary current [A/A]
- Rated burden and accuracy class for each winding [VA]
- Short-time thermal current  $I_{th}$
- Dimension of the window [mm]
- Standard
- Quantity

### Order example

KOKU 1 FC 8; 600/5 A/A; 10 VA; 0.5;  $I_{th} = 60 \times I_{pn}/1s$ ;  
IEC 61869-2; 9 Pcs

**Table 1. Technical data**

Transformer type			KOKU 072 G	KOKU 1
Rated voltage	$U_m$	[kV]	0.72 <sup>1)</sup>	1.2 <sup>1)</sup>
Power frequency test voltage	$U_p$ (1 min)	[kV]	3	6
Lighting test voltage	$U_{pp}$	[kV]	-	-
Frequency	$f_n$	[Hz]	50 or 60	
Max. primary current	$I_{pn}$	[A]	50 ÷ 800	50 ÷ 10 000
Rated secondary current	$I_{sn}$	[A]	1 or 5	
Rated thermal current <sup>2)</sup>	$I_{cont}$	[A]	Table 2	$1,2 \times I_{pn}$ <sup>2)</sup>
Short-time withstand current	$I_{th}$ (1 s)	[kA]	Table 2	$60 \times I_{pn}$ (Max. 100 kA)
Peak withstand current	$I_{dyn}$	[kA]	$2,5 \times I_{th}$ (Max. 250 kA)	
Secondary terminals			max for 6 mm <sup>2</sup> conductor	
Operating temperature range		[°C]	-40 ... +40	
Transport and storage		[°C]	-65 ... +55	
Electrical standards			IEC 61869-2; PN-EN 61869-2	

1) The insulation level of the primary conductor determines the maximum operating voltage.

2) Max.  $I_{cont}$  for KOKU 072 G  $I_{cont} = 1000$  A, for KOKU 1  $I_{cont} = 10 000$  A.

Table 2. Standard parameters for KOKU 072 G\_

Type	Window diameter	Total height	Hole center height	Ratio	Accuracy class	Burden	Short circuit current I <sub>th</sub>	Rated thermal current I <sub>cont</sub>
	[mm]	[mm]	[mm]	[A]		[VA]	[kA]	ext [%]
KOKU 072 G3	Ø135	230	125	400/0,1	0,5/10P25	0,9	20 (1s)	200
KOKU 072 G4	Ø135	230	125	200/1	5P10	1,5	25 (1s)	120
KOKU 072 G4	Ø135	230	125	400/1	5P10	3	25 (1s)	120
KOKU 072 G4	Ø135	230	125	600/1	5P10	3	25 (3s)	120
KOKU 072 G4	Ø135	230	125	630/1	5P10	3	25 (3s)	120
KOKU 072 G5	Ø150	50	75	500/1	0,2 FS5	1	25 (1s)	120

If other electrical parameters other than those given in the tables are required please contact our sales department.

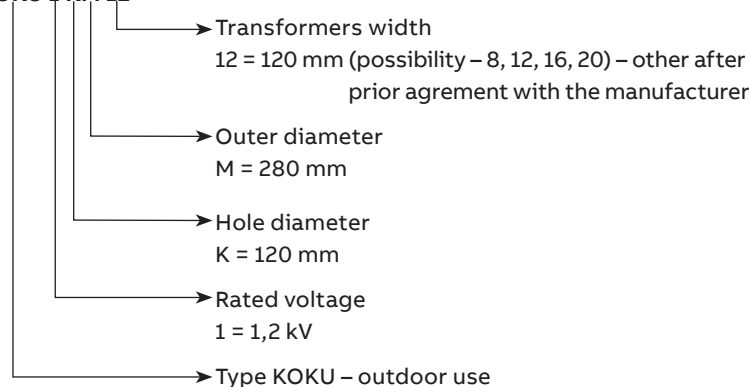
Table 3. KOKU 1\_

Outer diameter [mm]		Hole diameter [mm]																Drawing	Casting height [mm]	Total height [mm]	Hole center height [mm]
		A	B	D	E	F	G	H	K	N	R	S	U	W	X	Y	Z				
		33	42	60	70	85	90	100	120	155	180	200	250	350	400	450	500				
C	148	60	60	60	60	60												KOKU 1_C_	183	249	112
F	186	80	80	80	80	80	80	80										KOKU 1_F_	213	279	131
H	200	80	80	80	80	80	80	80	80									KOKU 1_H_	235	301	138
J	235	80	80	80	80	80	80	80	80	80								KOKU 1_J_	265	331	158
K	250	80	80	80	80	80	80	80	80	80	80							KOKU 1_K_	275	341	158
L	270	80	80	80	80	80	80	80	80	80	80	80						KOKU 1_L_	297	363	158
M	280	80	80	80	80	80	80	80	80	80	80	80	80					KOKU 1_M_	297	363	158
P	340		80	80	80	80	80	80	80	80	80	80	80	80				KOKU 1_P_	379	445	204
T	450					80	80	80	80	80	80	80	80	80	80			KOKU 1_T_	465	513	225
W	590						80	80	80	80	80	80	80	80	80	80	80	KOKU 1_W_	605	653	300

1) It is possible to define high accuracy and stable performance with extended range design. Accuracy is guaranteed to be from 1 % of nominal current through rating factor, up to 200 % of I<sub>n</sub>.

## Example

## KOKU 1 KM 12



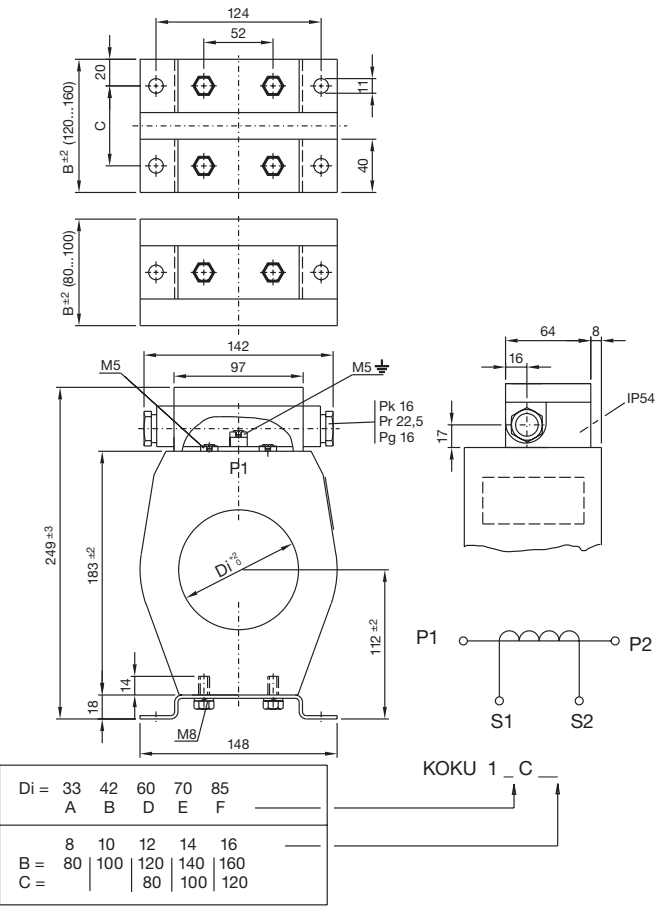
## Warranty

The manufacturer grants a 24 month warranty for purchased transformers from the date of commissioning, however not longer than 30 months from the delivery date. The producer is not responsible for faults and damages resulting from:

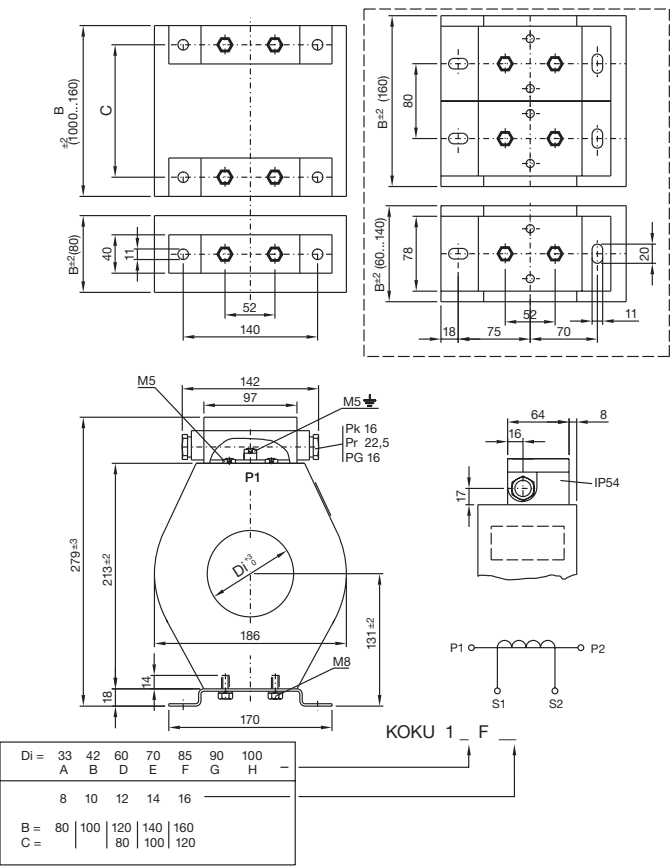
- incorrect transport after the receipt of the transformers by the buyer,
- incorrect storage, installation and operation of transformers,
- inappropriate selection of transformers for a specific electric system.

Dimensional drawings

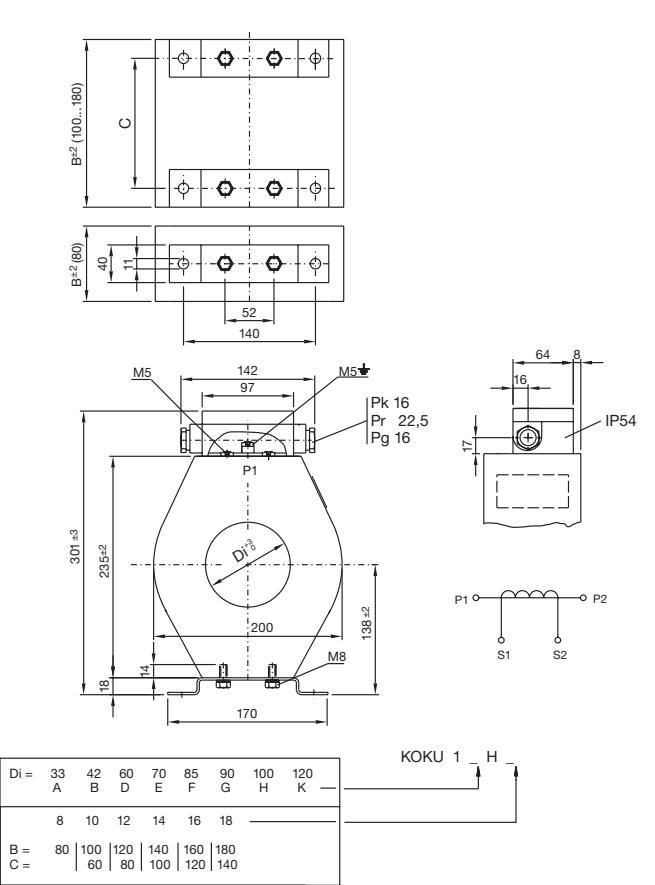
KOKU 1\_C\_



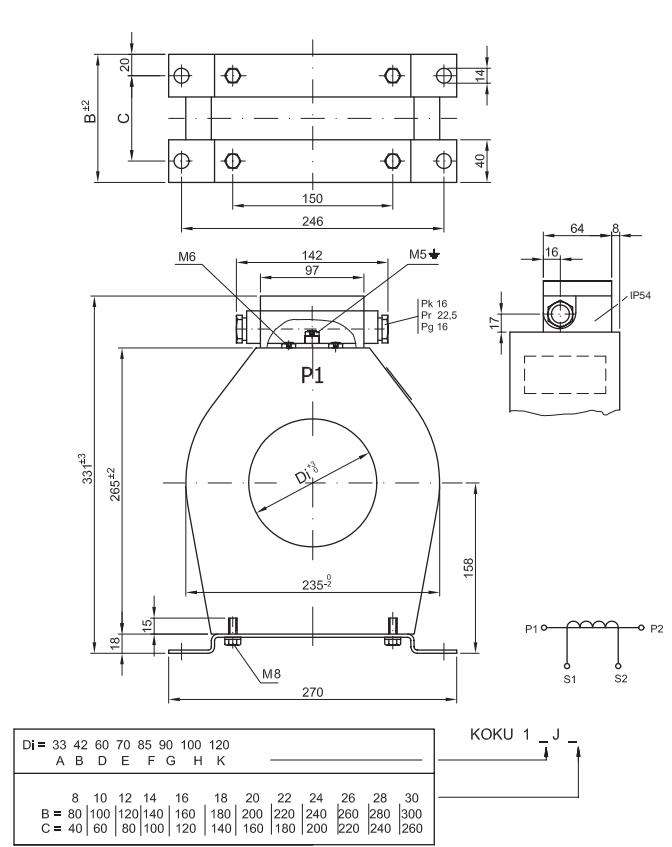
KOKU 1\_F\_



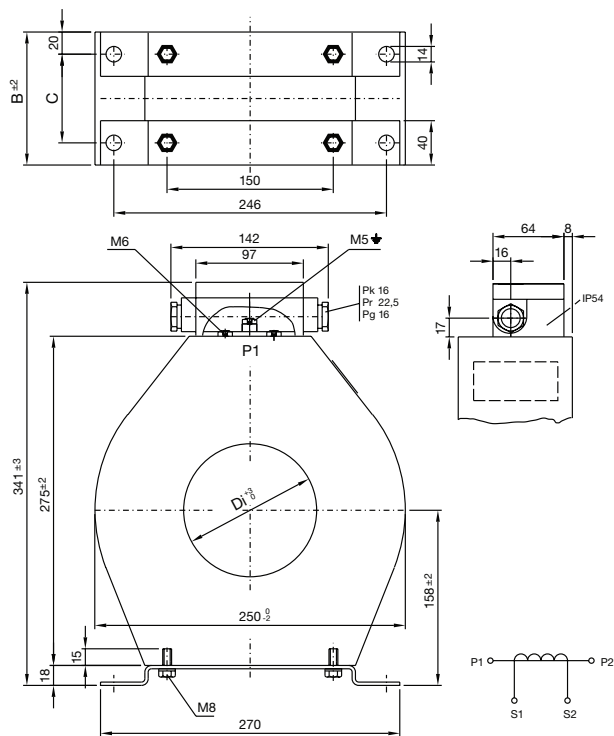
KOKU 1\_H\_



KOKU 1\_J\_



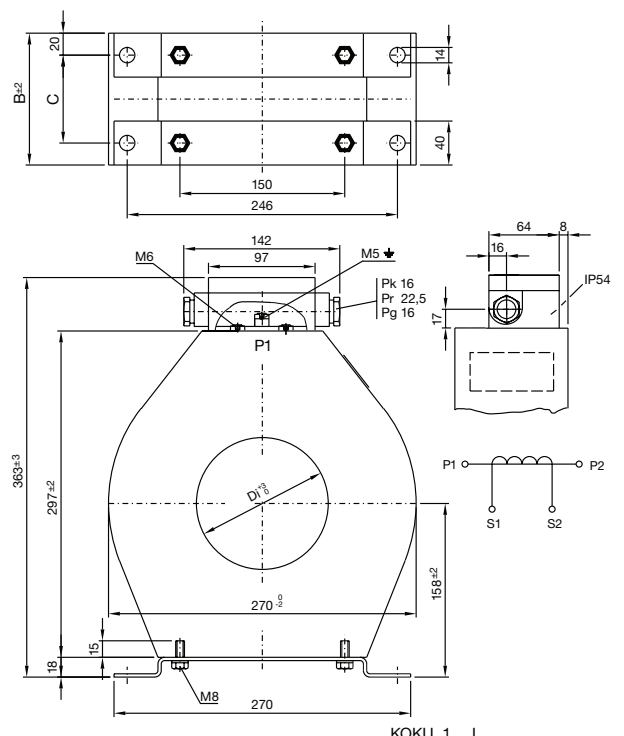
KOKU 1\_K\_



Di =	33	42	60	70	85	90	100	120	155	
A	B	D	E	F	G	H	K	N	R	S
8	10	12	14	16	18	20				
B =	80	100	120	140	160	180	200			
C =	40	60	80	100	120	140	160			

KOKU 1\_K\_

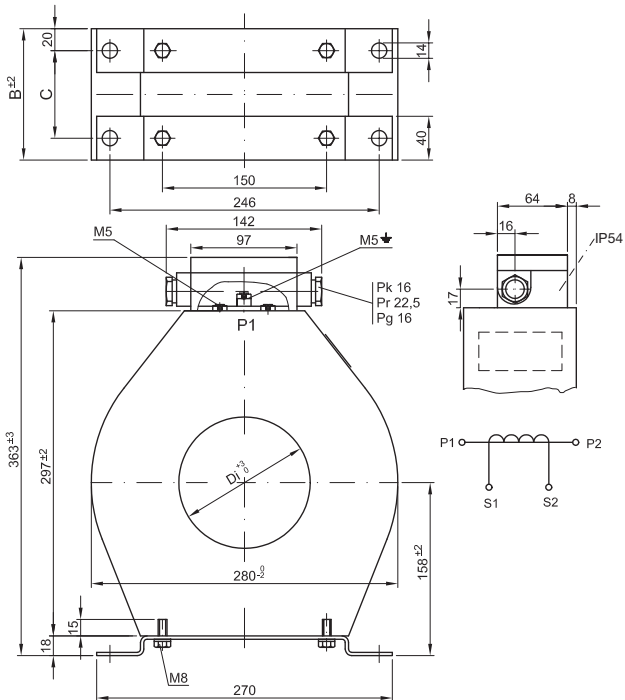
KOKU 1\_L\_



Di =	33	42	60	70	85	90	100	120	155	180	200	
A	B	D	E	F	G	H	K	N	R	S		
8	10	12	14	16	18	20						
B =	80	100	120	140	160	180	200					
C =	40	60	80	100	120	140	160					

KOKU 1\_L\_

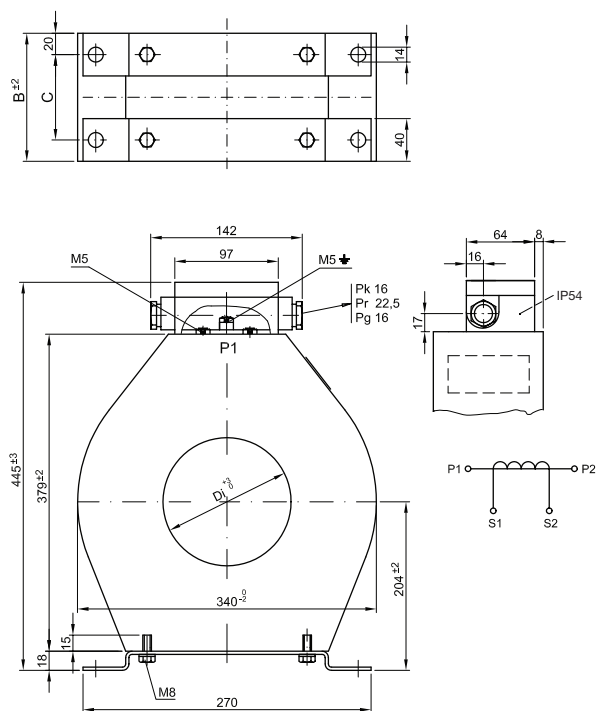
KOKU 1\_M\_



Di =	33	42	60	70	85	90	100	120	155	180	200	
A	B	D	E	F	G	H	K	N	R	S		
8	10	12	14	16	18	20	22	24				
B =	80	100	120	140	160	180	200	220	240			
C =	40	60	80	100	120	140	160	180	200			

KOKU 1\_M\_

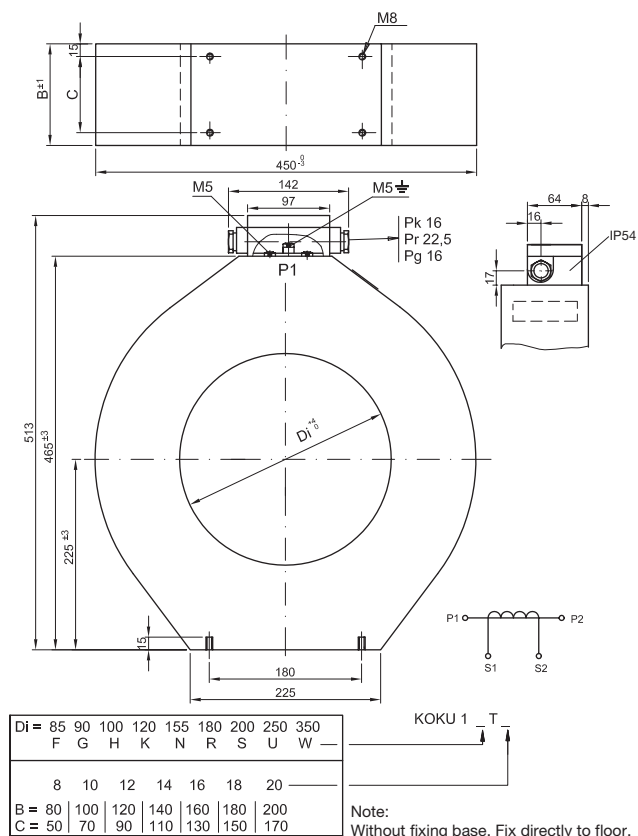
KOKU 1\_P\_



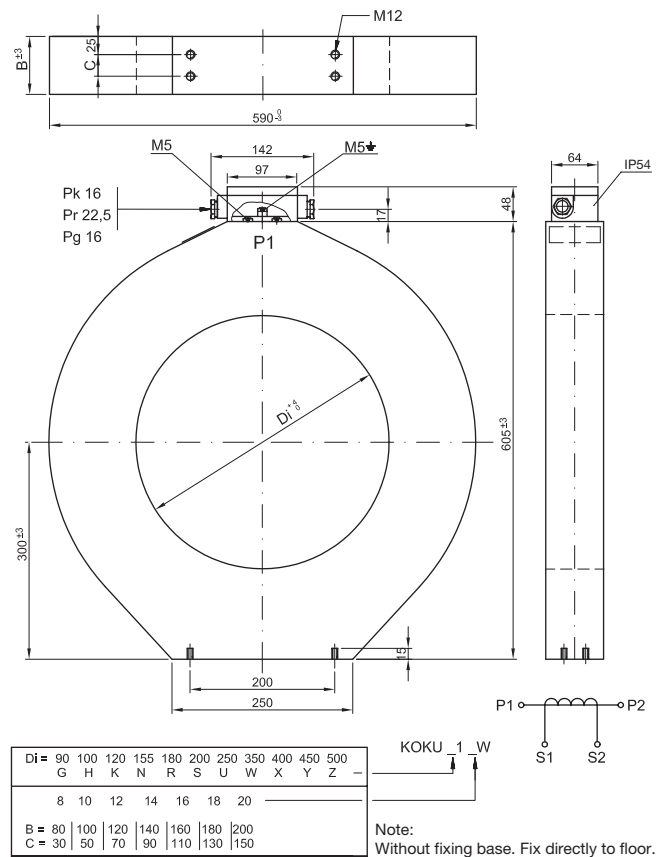
Di =	42	60	70	85	90	100	120	155	180	200	250	
A	B	D	E	F	G	H	K	N	R	S	U	
8	10	12	14	16	18	20						
B =	80	100	120	140	160	180	200					
C =	40	60	80	100	120	140	160					

KOKU 1\_P\_

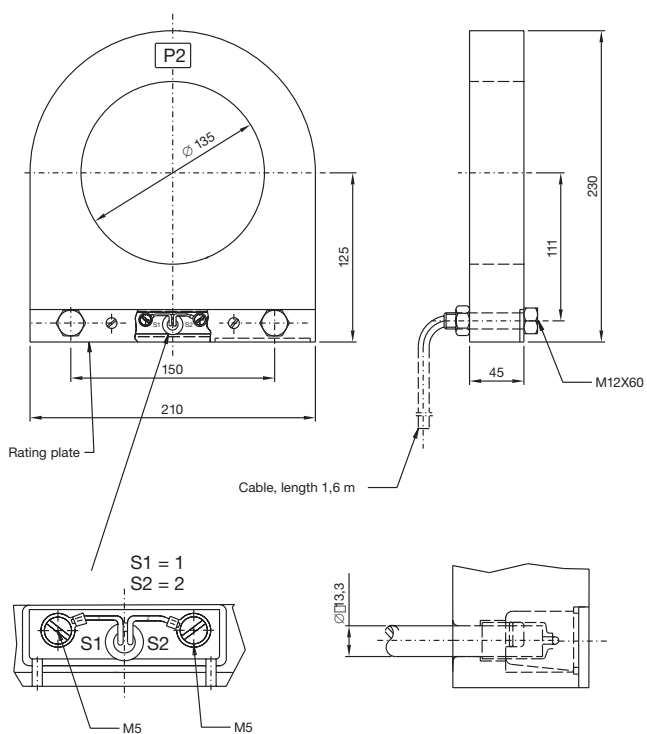
## KOKU 1\_T\_



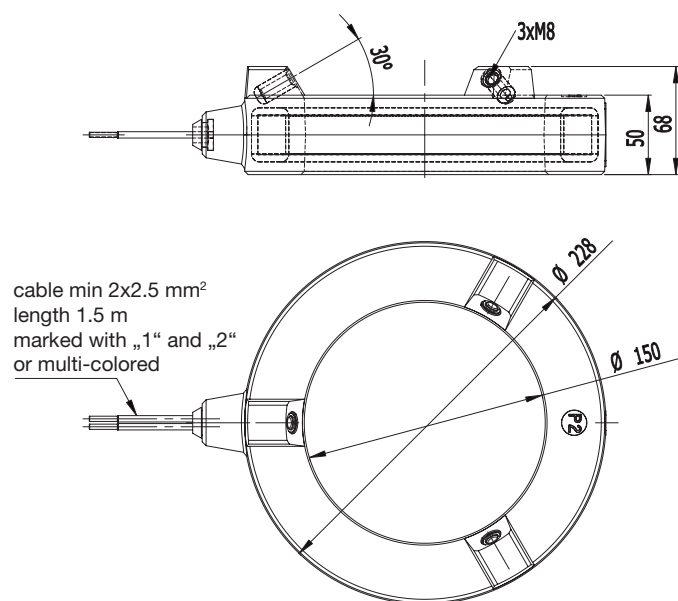
## KOKU 1\_W\_



## KOKU 072 G3 (G4)



## KOKU 072 G5



# Cable current transformers

## type IHDA 05



IHDA current transformers are suitable for measuring phase currents in low voltage switchgears. A busbar or cable serves as the primary conductor. Series IHDA current transformers can also be used for measuring the phase current at voltages higher than 0.72 kV if the insulation of the primary conductor satisfies the requirements of the respective standards for the operating voltage.

Fixing base shall be mounted to the lower clamp nut in the transformer with screws fitted with washers that are included in the package. Fixing base can be mounted either parallel to the transformer, or perpendicular. Secondary terminal cover can be installed at the secondary terminals. In the cover there are two alternative openings for the exit of the cables. The cover has IP20 and can be sealed.

**Table 4. Technical data**

Rated voltage $U_m$	0,72 kV <sup>1)</sup>
Power frequency test voltage 50 Hz (1min) $U_p$	3 kV
Frequency $f_n$	50 Hz (60 Hz)
Rated thermal current $I_{cont}$	1,2 x $I_{pn}$
Short-time withstand current $I_{th}$ (1 s)	60 x $I_{pn}$
Peak withstand current $I_{dyn}$	2,5 x $I_{th}$
Secondary terminals	max for 6 mm <sup>2</sup> conductor
Operating temperature range	-5 ... +40°C
Electrical standards	IEC 61869-2, PN-EN 61869-2

<sup>1)</sup> The insulation level of the primary conductor determines the maximum operating voltage.

### Warranty

The manufacturer grants a 24 month warranty for purchased transformers from the date of commissioning, however not longer than 30 months from the delivery date. The producer is not responsible for faults and damages resulting from:

- incorrect transport after the receipt of the transformers by the buyer,
- incorrect storage, installation and operation of transformers,
- inappropriate selection of transformers for a specific electric system.

### Ordering data

The order should contain the following data:

- Type of current transformer
- Rated primary current/rated secondary current [A/A]
- Rated burden [VA]
- Accuracy class
- Quantity

### Order example

IHDA 05 C1 400/5; 15 VA; class 0,5; 9 pcs

Table 5. Standard parameters for IHDA. Secondary current  $I_{sn} = 1 \text{ A}$ 

Type IHDA	Window diameter [mm]	Primary current [A]	Burden [VA]								Weight [kg]
			Accuracy class and FS, ALF								
			0,5	FS	1	FS	3	FS	10P	ALF	
05C1-400/1	58	400	15	10	30	5	60	5	7	10	2,5
05C1-500/1	58	500	20	10	40	5	80	5	10	10	
05C1-600/1	58	600	40	5	80	5	80	5	12	10	
05C1-800/1	58	800	50	5	80	5	80	5	10	10	
05C1-1000/1	58	1000	60	5	80	5	80	5	8	10	

Table 6. Standard parameters for IHDA. Secondary current  $I_{sn} = 5 \text{ A}$ 

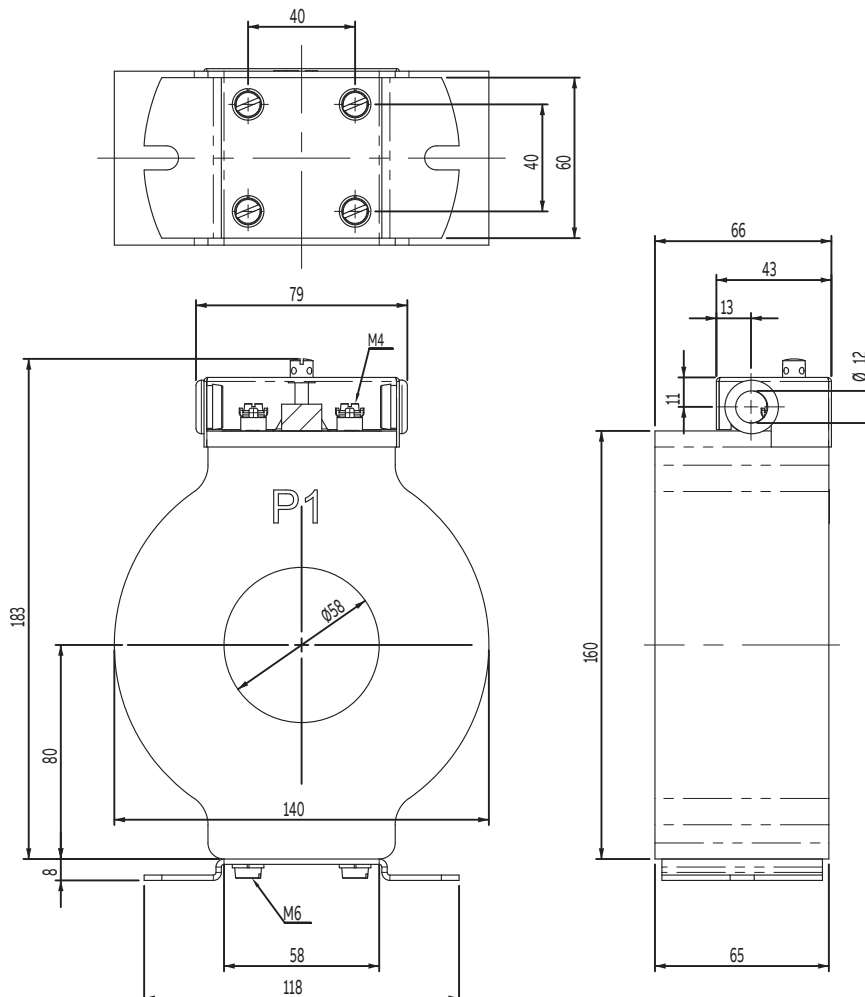
Type IHDA	Window diameter [mm]	Primary current [A]	Burden [VA]								Weight [kg]
			Accuracy class and FS, ALF								
			0,5	FS	1	FS	3	FS	10P	ALF	
05C1-400/5	58	400	15	10	30	5	60	5	7	10	2,5
05C1-500/5	58	500	20	10	40	5	80	5	10	10	
05C1-600/5	58	600	40	5	80	5	80	5	12	10	
05C1-800/5	58	800	50	5	80	5	80	5	10	10	
05C1-1000/5	58	1000	60	5	80	5	80	5	8	10	
05C1-1200/5	58	1200	60	5	80	5	80	5	10	10	
05C1-1500/5	58	1500	60	5	80	5	80	5	10	10	
05C1-1600/5	58	1600	60	5	80	5	100	5	12	10	

FS – security factor

ALF – standard accuracy limit factor

## Dimensional drawings

IIHDA 05 C1 complete with fixing base KOK-ZAX 13 and terminal cover KOK-ZAX14



# Special current transformers

## type IMT



IMT current transformer is used to supply current circuits in power equipment measuring systems with rated voltage of 0.72 kV and rated frequency of 50 Hz.

The transformers are built for the primary current range of 75 A–1000 A and the secondary current of 5 A. The IMT transformers are dedicated to power balance systems which use the current transformer to measure current on the low voltage side of the transformer. The dimensions of the current transformer are adjusted to the size of the low voltage bushings and the distance between them. Burden and class are given at the ends of the cables.

### Operating conditions

The current transformer is adapted for operation in the outdoor conditions of the temperate climate. The rated long duration thermal current and the error limits of the current transformer correspond to the extended current range for 120%  $I_{pn}$  in the ambient temperatures of -35°C to +40°C. Protection class IP 44.

Unlike the conventional transformers, power and class are provided at the ends of the wires. This means that there is no need to include of losses on the connecting wires.

### Construction

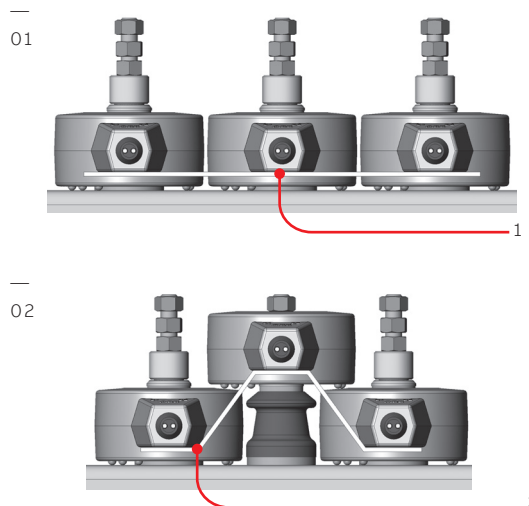
The IMT current transformer is a single phase low power transformer, operating in conditions approximate to short-circuit conditions, transforming current in the primary circuit into current in the secondary circuit, while maintaining the requirements given in standards concerning the transformation accuracy.

The secondary winding of the current transformer is cast in hydrophobic epoxy resin (HCEP),

capable of withstanding outdoor environmental conditions. Each transformer has the secondary side terminals in the shape of two 4-metre-long (standard version) 2.5 mm<sup>2</sup> cables designated with digits 1 and 2 or multi-colored.

### Fixing

The IMT current transformer may be placed on a transformer in such a way that the low voltage bushing can be located centrally in the current transformer window. When the distance between the bushings is small it is allowed to arrange the transformers one on the other in a so called pyramid. The M6 threaded hole in the cable lead part makes it possible to protect the current transformer from shifting. We suggest using an M6 bolt and a straight flat bar in order to immobilize the current transformers when they are placed next to one another (fig. 1) or a trapezoid flat bar when they are arranged in a „pyramid” (fig. 2).



—  
01  
Flat bar

—  
02  
Trapezoid flat bar

## Technical Data

### Packing, transport, storage

Current transformers transported at a long distance should be packed in wooden crates protecting the apparatus from damage. Transformers transported on small distances can be transported by truck without packing, but should be protected from damage by separating them from other products. During loading and unloading, crates with transformers cannot be thrown or turned over. The wooden crates must be properly marked, according to the requirements concerning transportation of goods sensitive to mechanical damage. The transformers must be stored in dry and clean rooms with temperature close to +20°C. It is inadvisable to store the transformers in wooden crates outdoors.

### Spare parts

The IMT current transformer is an unreparable apparatus. No spare parts are provided.

### Compliance with standards

IEC 61869-2; PN-EN 61869-2.

Transformers have IEN certificate.

### Warranty

The manufacturer grants a 24 month warranty for purchased transformers from the date of commissioning, however not longer than 30 months from the delivery date. The producer is not responsible for faults and damages resulting from:

- incorrect transport after the receipt of the transformers by the buyer,
- incorrect storage, installation and operation of transformers,
- inappropriate selection of transformers for a specific electric system.

### Proceeding with used product

Considering the raw materials used and the production technology, the transformers do not constitute a hazard to the environment. The product which is used or faulty must be dismantled, the parts must be segregated and recycled or disposed by appropriate companies.

### Example of order

Low voltage current transformer type  
IMT 250/5; 1 VA – 0.5; FS 5; 30 items.

## Technical data

Type	Class**	Current			Security factor FS	Rated short-time thermal current I <sub>th</sub> (1s)	Rated dynamic current I <sub>dyn</sub>	Maximum permissible voltage U <sub>m</sub>	Rated test voltage U <sub>p</sub>	Weight (approx.)	Dimensions			Cable length* 2 x 2.5 mm <sup>2</sup>	
		Primary	Secondary	Burden**							Inner diameter	Outer diameter	Height		
		I <sub>pn</sub>	I <sub>sn</sub>												
		[A]	[A]	[VA]											[mm]
IMT	0.5	75		1	5	60 x I <sub>pn</sub>	2.5 x I <sub>th</sub>	0.72	3	1.4	53(53)	106(136)	55(45)	4*	
		100		1											
		150	5	1											
		200		1; 2.5											
	0.5 0.5S	250		1; 2.5						5	1.6	73(73)	136 (136)		45(45)
		400		1; 2.5											
		500	5	1; 2.5											
		600		1; 2.5											
		800		1; 2.5											
		1000	5	1; 2.5											

It is possible to order transformers of other parameters after prior arrangement with the manufacturer.

\* 6 m cable length is possible for  $I_{pn}$  75 A and 100 A with burden 1 VA and for  $I_{pn}$  from 150 A to 1000 A with maximum 2 VA burden. A longer cable may be cross-section 2 x 4 mm<sup>2</sup>.

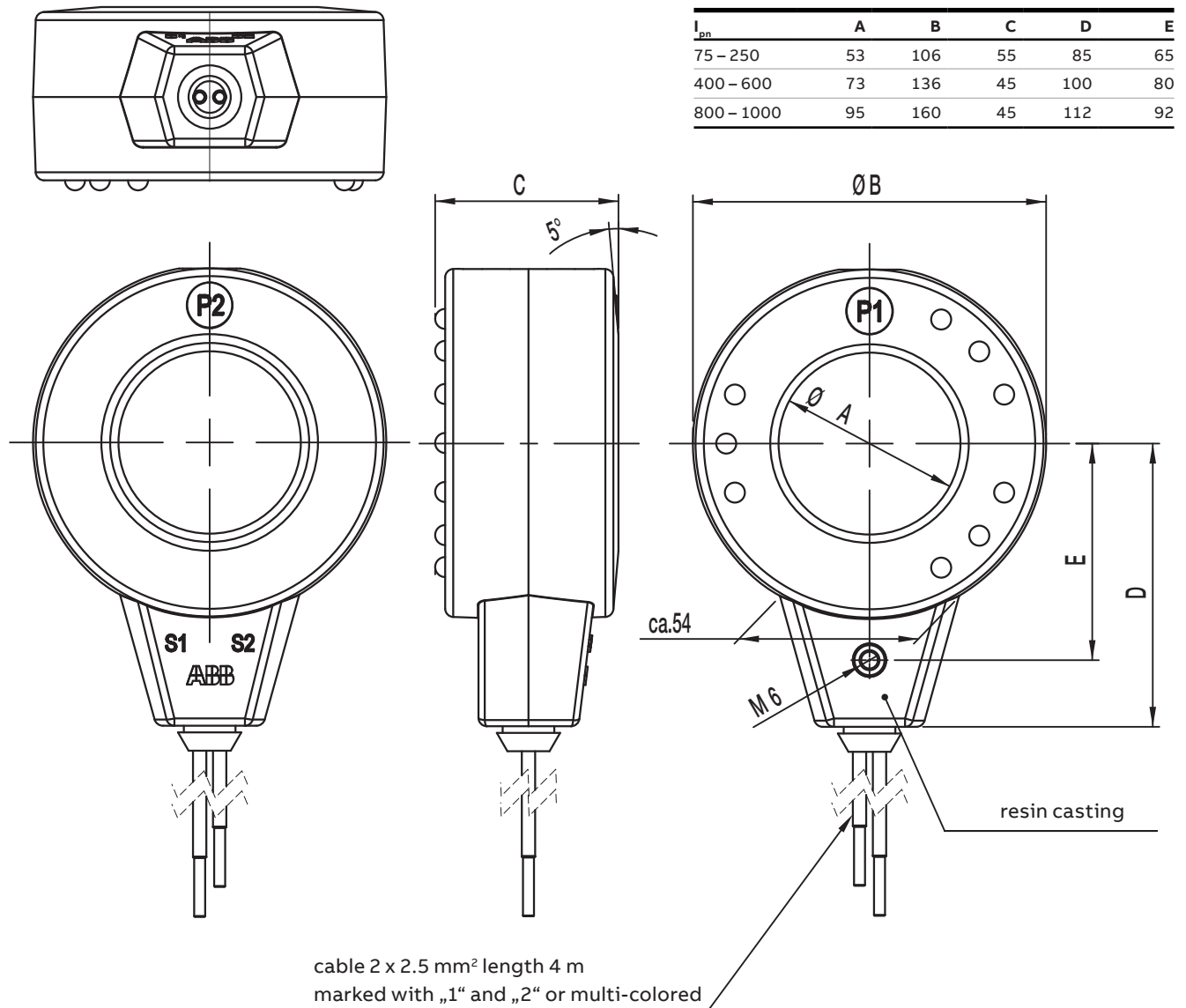
\*\* Burden and class are given at the ends of the cables. Taking in to consideration losses on connecting terminal, 1VA is sufficient to feed electronic measurement devices.

### Sizing the IMT current transformer to a transformer

Power rating [kVA]	Transformer		Current transformer	
	DN insulator		IMT	A/A
	Type	Diameter [mm]		
25	DT1/250(350)	50		75/5
40				
63				
100				
160				
250	DT1/630(700)	70		150/5
400				
630	DT1/1000	90		250/5
				500/5
				1000/5

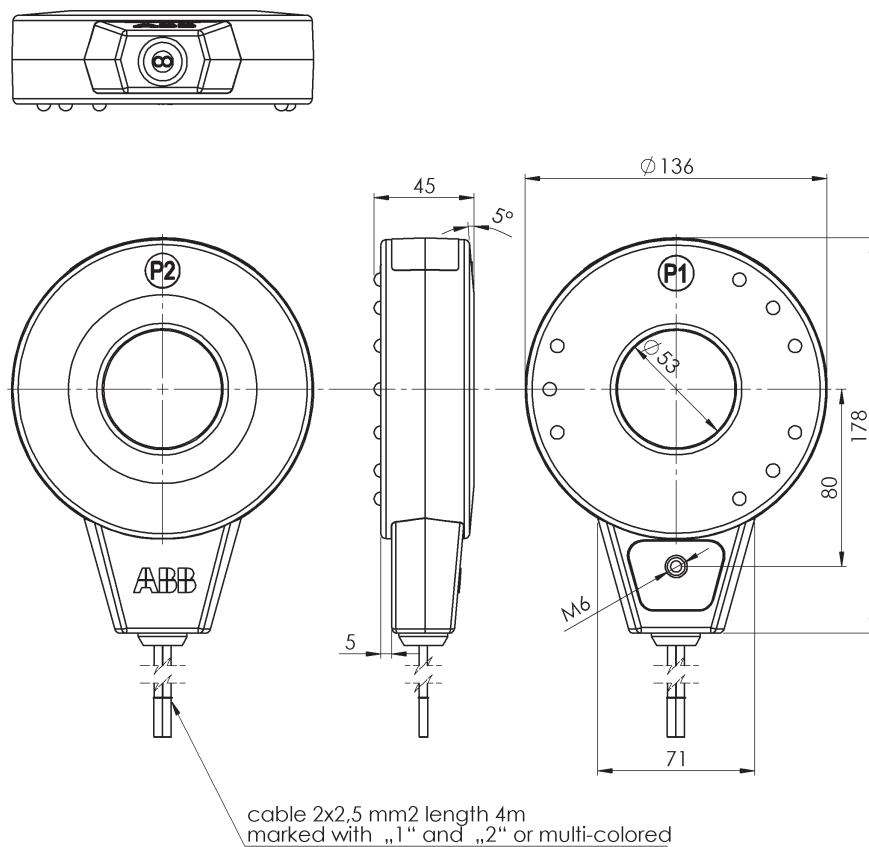
The data are presented for information only.

### Dimensional drawings



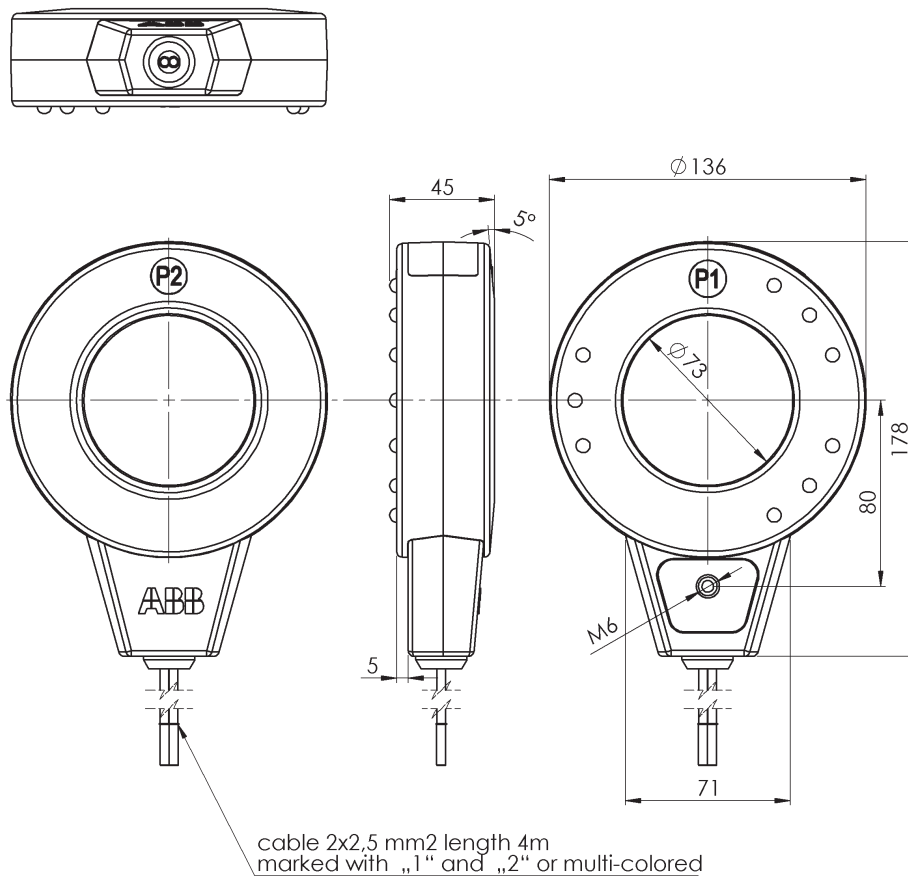
## IMT 300

weight: 1,6 kg



## IMT 700

weight: 1,6 kg



---

#### CONTACT US

ABB s.r.o.  
ELDS Brno  
Videnska 117, 619 00 Brno,  
Czech Republic  
Tel.: +420 547 152 021  
+420 547 152 854  
Fax: +420 547 152 626  
E-mail: kontakt@cz.abb.com

---

#### NOTE

We reserve the right to make technical changes or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB does not accept any responsibility whatsoever for potential errors or possible lack of information in this document.

We reserve all rights in this document and in the subject matter and illustrations contained therein. Any reproduction, disclosure to third parties or utilization of its contents - in whole or in parts - is forbidden without prior written consent of ABB.

Copyright© 2022 ABB  
All rights reserved