MAK 74/S…

Summation C.T.'s are designed to summarize several **synchronous** A.C. currents of **equal phase relation** with **any angle of phase difference,** i.e. summarize the secondary currents of a number of main C.T.'s. The secondary circuits of the main C.T.'s are to be connected to the corresponding marked primary terminals of the summation C.T., i.e. each main C.T. feeds with its secondary current a specific portion of the primary winding of the summation C.T. The number of turns of the parti-cular sections of the primary winding must fit in with ratios of the main C.T's. If all main C.T.'s have identical ratios, it is irrelevant for their secondary circuits to which section of the primary winding of the sum-mation C.T. they are connected.

The current transformers are made according to BS 3938, EN 60044-1 and DIN 42600 standards.

Technical data:

Class of accuracy:	0,2…3 (see table).
Rated burden:	max. 20 VA (see table).
Rated voltage:	720 V.
Rated frequency:	50-60 Hz.
Rated primary current input:	(2…6) x 5 A (or 1 A on request).
Rated sec. current:	5 A (or 1 A on request).
Security factor	FS 5
Working temperature range:	-20 … +45°C.
High voltage test:	4 kV$_{eff}$, 50 Hz, 1 min.
Insulation class:	E (max. 120°C)
Protection:	IP 00.
Case:	made of non-flammable plastic, UL 94 V-0.

Dimensions in mm.

Primary terminal screw :M4
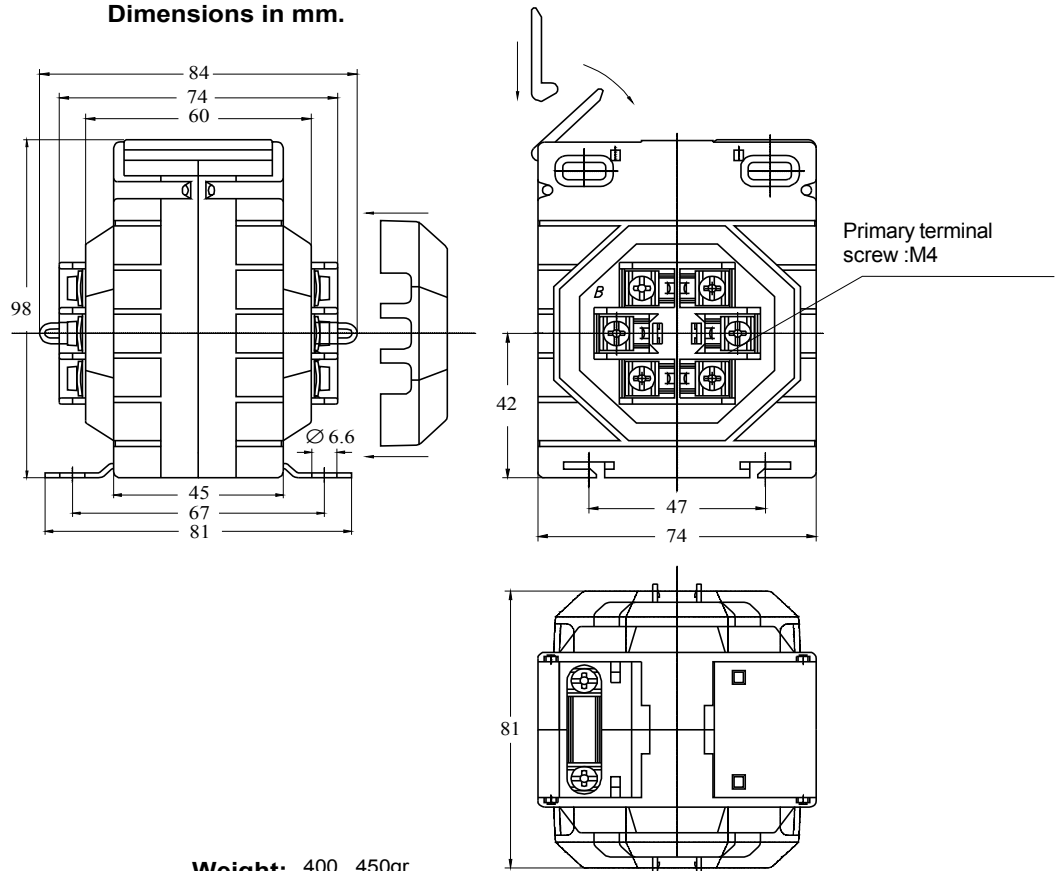
Weight: 400...450gr

Different ranges of MAK 74/S summation current transformer see table on next page

Table with different ranges of MAK 74/S summation current transformers.

Nr. of Circuits Ratio	Acc. class	Type MAK 74/S...			
		Rated burden (VA)			
		5	10	15	20
MAK74/S2 2 circuits 5+5/ 5 A	0,2 0.5 1 3	x x x	x x	x x	x
MAK74/S3 3 circuits 3x5/ 5 A	0,2 0.5 1 3	x x x	x x	x x	x
MAK74/S4 4 circuits 4x5/ 5 A	0,2 0.5 1 3	x x x	x x	x x	x
MAK74/S5 5 circuits 5x5/ 5 A	0,2 0.5 1 3	x x x	x x	x x	x
MAK74/S6 6 circuits 6x5/ 5 A	0,2 0.5 1 3	x x x	x x	x x	x

Non standard options:- 1 A primary; 1 A secondary.

Connection diagram of MAK 74/S... summation current transformer.
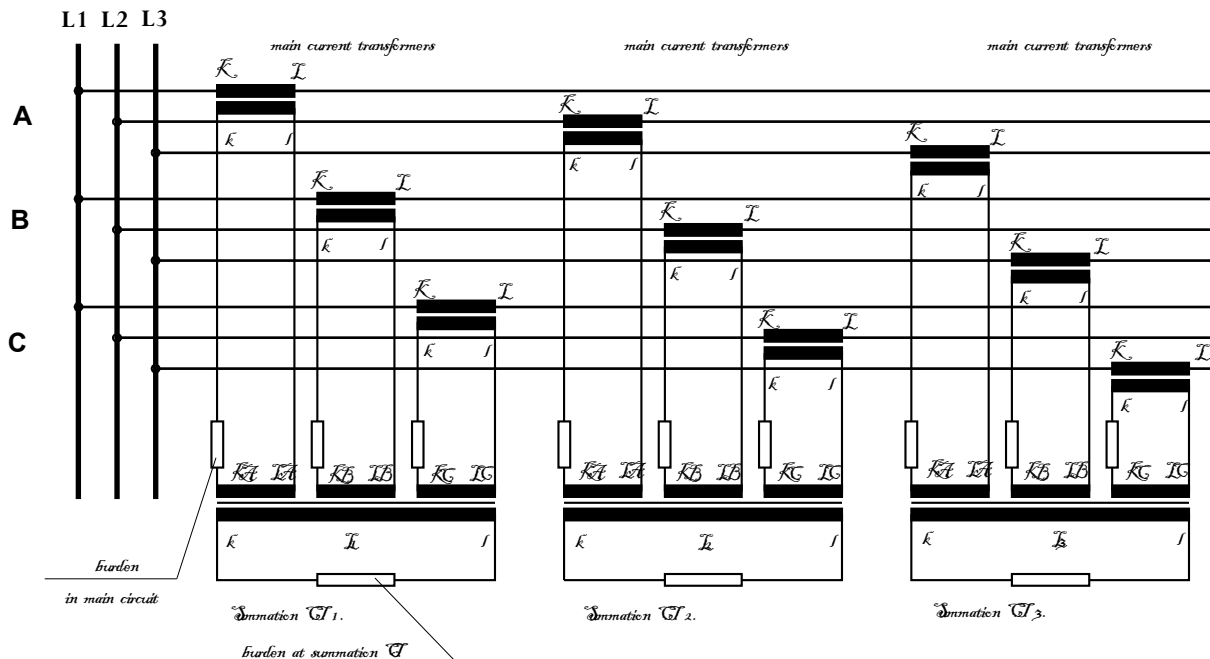
Note:

In case of absence of current in one of the main C.T.'s, the corresponding circuit must not be short-circuited, neither at the summation C.T. nor at the main C.T. If one circuit of a summation C.T. is unused because the corresponding main C.T. is to be connected at a later stage, the relevant section of the summation C.T. has to be used on open circuit.

Errors of main C.T.'s and summation C.T.'s could accumulate.

The rated secondary current of the main C.T. and the rated primary current of the corresponding circuit of the summation C.T. must be equal.

The primary terminals of the summation C.T.'s are marked
    AP1   AP2

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BP1        BP2
CP1        CP2
DP1        DP2
EP1        EP2
FP1        EP2
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P1 equivalent K   P2 equivalent L

The sections of the summation C.T. relate to the main C.T.s.
This is indicated on an information plate.

A	:	B	:	C
6	:	3	:	2

In order to facilitate the user in making the right selection of components of a measurement set-up with summation current transformers, the following examples have been listed.

The total current and the total power of three branches shall be measured by one ammeter one current transducer and one power transducer.

Relation of main C.T.'s are: 600/5 A
                                      300/5 A
                                      200/5 A
                            Σ= 1100/5 A

The burden to be supplied by the three main C.T.'s can be calculated as follows:
Moving-iron ammeter   0,5 VA
Current transducer   0,5 VA
Power transducer   0,5 VA
Measurement conductor loss   2,0 VA
Own use   4,0 VA
                        Σ=   7,5 VA

The individual transformer must provide its VS share from its 7,5 VA corresponding to its ratio to the overall transmission

1 Main C.T.   600/5 A $\frac{600}{1100}$ x 7,5 VA = 4,1 VA+ incl. possible losses

2 Main C.T.   300/5 A $\frac{300}{1100}$ x 7,5 VA = 2 VA+ incl. possible losses

3 Main C.T.   200/5 A $\frac{200}{1100}$ x 7,5 VA = 1,4 VA+ incl. possible losses

The VA -values of the main transformers to be ascertained are to be compared with the corresponding VA values in our tables.

The C.T. could also be used for any other main C.T.s if they have corresponding ratios, e.g. 60/5, 30/5, 20/5 A.

The ratio of the nominal primary current of a main transformer to the sum of the nominal primary currents of all the main transformers may not exceed the ratio 1:8.

Order specification:

-Summation-type current transformer.
-Class of accuracy: 0,5
-Rated primary current input: 5+5+5/5 A.
-Rated ratios of main C.T.'s: 600/5A, 300/5A and 200/5A
-Rated secondary current: 5 A.
-Rated burden: 15 VA

MAK 74/S   5+5+5/5 A   Cl. 0,5   15VA
Main C.T.'s: 600/5 A, 300/5 A and 200/5 A
or in relation 6:3:2

Note:
On request, order for clip for DIN EN 50 022 rail are accepted. Cat. No. **12-3044-94**.

When all main C.T.'s have identical ratios it is irrelevant for their secondary circuits to which section of the primary winding of the summation C.T. they are connected.