SUMCT–SUMMATION CURRENT TRANSFORMER

1. WORKINGPRINCIPAL

Summation curren ttransformers are used to add up secondary currents of multiple main current transformers to measure with one instrument only.

The currents are always vectorially added under consideration of the amount and phase disposal of the current so it can be used for measuring active or reactive power,energies,and total power factor of the system.

The output signal is again as tandardized signal which is received by adding the input currents by the quantity of inputs and the ratio of inputs.

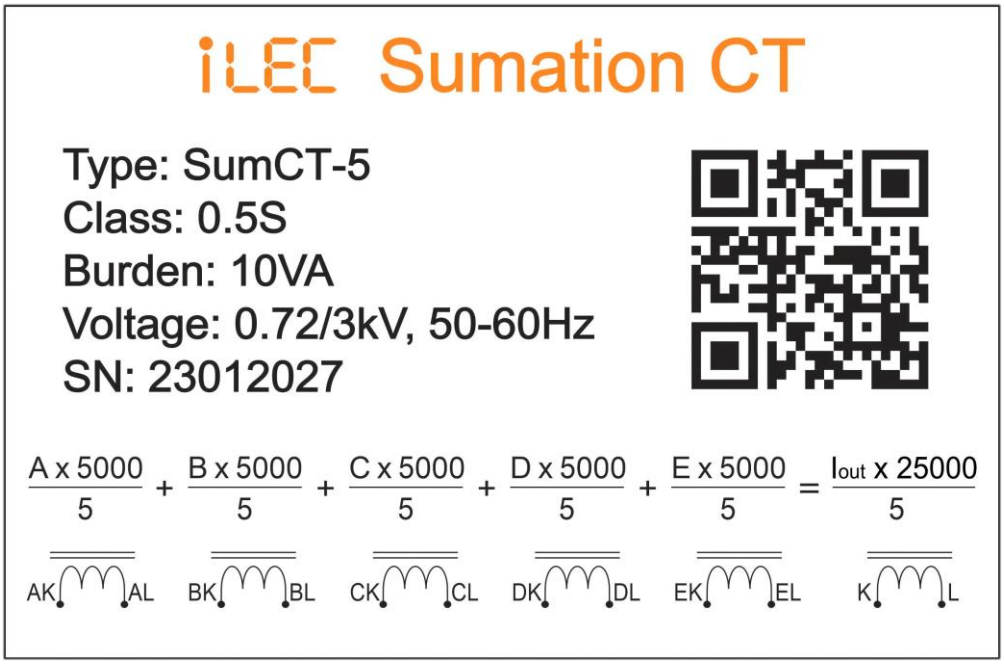
As mentioned above,the currents are always vectorially added,so the output is very different,and not easy to check by any clamp and multimeter. For ease of understanding, we assume the input currents have the same phase angle, only different amplitudes.

We are considering a summation current transformer with five inputs 5000/5A and one output 25000/5A.

The formula is shown as below:

$$\frac{A \times 5000}{5} + \frac{B \times 5000}{5} + \frac{C \times 5000}{5} + \frac{D \times 5000}{5} + \frac{E \times 5000}{5} = \frac{Iout \times 25000}{5}$$

Where:A,B,C,D,E :inputs from standard 5A CT Iout: output, standard 5A secondary side.



The sample values for inputs and output as below tables:

A	B	C	D	E	Iout	Output current with CT Ratio 25000/5 (A)
1	1	0.5	0.5	1	0.8	4000
2	2	1	1	2	1.6	8000
3	3	1.5	1.5	3	2.4	12000
4	4	2	2	4	3.2	16000
5	5	2.5	2.5	5	4	20000

Testingdiagram:

The easiest way to test the sumCT is connecting all primary inputs inseries with the forward direction and test as a 5A:5A current transformer.

Importantnoteswhenusing:

1. Unconnected secondary currents **MUSTBEshort-circuited**
2. Unused primary terminal shave to remain open and shall never be short-circuited in contrary to the secondary terminals. (avoid keeping unused primary inputs)
3. Connecting correct current transformer with exactly ratio to all primary inputs
4. The burden of the current transformer connected to the primary input must be sufficient to ensure the output power.

2. APPLICATIONS

- Measuring from two or more distribution transformers for zero-export solar system(LVside)
- Measuring from two or more distribution MCCB/Transformer for one customer
- Measuring from two or more distribution branches for one capacitor panel

3. TECHNICALPARAMETERS

- Highest voltage equipment : 720 V
- Rated insolation level :3 kV, 1 min.
- Rated shot-time thermal current (Ith) : 50 x In
- Rated dynamic current(Idyn) : 2.5 x Ith
- Frequency range :50 -60Hz
- Internal consumption : Max. 4 VA
- Output current :5A(1A canbeordered)
- Maximum continuous current : 6A
- Instrument security factor(FS) :<5
- Thermal class of insulation : E
- Accuracy class index and burden :Class 0.510VA, CL0.5S(CL 1for some unequal CTs)
- Fixing :DIN-rail or screw fastening

5.DIMENSION

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