

General description summary current transformers



Application

Summary current transformers are suitable for the summation of several synchronized alternating currents with similar phases but with differing load phase shifts. It is also possible to have the summation of currents with varied nominal voltages of similar phase positions. These measurements cannot be used for tariff applications, as the existing voltage differences are recorded as errors.

With the counter connection of the main transformer to the summation current transformer, it is possible to receive secondary currents which are proportional to the differences of the primary input currents. The built-in technical know-how enables the summary current transformers to add secondary currents of varying nominal transmissions from the main transformer.

Connection of main transformers with similar transmission ratios

It is irrelevant for the main transformers with similar nominal transmission ratios, to which primary circuit of the summary current transformer the connection is made.

Connection of main transformers with different transmission ratios

With main transformers of different nominal transmission ratios, care must be taken to adhere to the assigned connection to the terminals of the summary current transformers. Is the current flow in the main transformer interrupted, the secondary circuit of the main transformer must neither be short-circuited nor be connected to the summary current transformer, or to the main transformer.

Summary current transformers with unallocated primary circuits must remain open for a later connection to an additional main transformer. The secondary output current of the summary current transformer is in this instance lower than the secondary nominal current of the summary current transformer by a quantity equal to the ratio of the primary nominal current of this "missing" main transformer and the sum of all the primary nominal currents of the main transformer.

A measuring device with a measuring range equal to the secondary nominal current of the total current transformer can be used to display the „total current“.

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



Calculation and interpretation of summary current transformers

Example:

Actual situation:	3 transmission ratios	1000/5 A 800/5 A <u>600/5 A</u>
	Overall current	2400/5 A
Burden:	1 current meter 1 power recorder	
Locking for:	Summary CT and the VA power of the individual main transformers	
Required active performance of the summary current transformer:		
	Current meter	1,5 VA
	Power recorder	7,0 VA
	Measurement line loss	1,5 VA
	Consumption summary CT	<u>4,0 VA</u>
	Interim result	14,00 VA

The individual transformer must provide it's VA share from this 14.0VA corresponding to its ratio to the "total transmission". Consideration must also be given to the respective power loss between the main transformer and the summary transformer plus other possible losses.

1. Main transformer 1000/5 A	<u>1000</u> 2400 x 14,0 = 5,83 VA + additional possible losses
2. Main transformer 800/5 A	<u>800</u> 2400 x 14,0 = 4,67 VA + additional possible losses
3. Main transformer 600/5 A	<u>600</u> 2400 x 14,0 = 3,50 VA + additional possible losses

The VA values of the main transformers are to be rounded up to the corresponding VA values in our charts.