

Connecting measuring devices

Note on connecting measuring devices



When connecting measuring devices, regulators and current transformers, a few points must be observed.

Current transformer

The following points must be observed when connecting current transformers to measuring devices or controllers:

- Dimensioning
- power
- Current direction

Dimensioning

Current transformers should be correctly dimensioned in relation to the primary current. If it is too small, i.e. the primary current is too high, it will saturate. If it is dimensioned too large, the primary current is not sufficient to induce a sufficiently large secondary current.

Power

The power in VA that a current transformer can deliver depends on its design. It must be ensured that the measuring system (multimeter, multicomputer) provides sufficient power (approx. 0.3VA) to operate the internal measuring transformer. Note the major influence of the transformer cable on the power:

Intrinsic consumption of transformer cables			
Cross-section mm ² Cu	/5A	/1A	Explanation
1	1	0,04	A transformer which supplies a measuring device 10m away via a 2.5mm ² Cu cable must provide a power of at least 4.1 VA (=10*0.41) for the cable alone. Then there is the meter itself.
1,5	0,685	0,0274	
2,5	0,41	0,0164	
4	0,254	0,0102	
6	0,169	0,068	
10	0,0975	0,0039	
16	0,062	0,0025	

Current dimension

The connection of the transformer cables K and L to measuring devices in outgoing measurements must be carried out in such a way that a positive current is displayed. In individual cases, for example with large regenerative drives, a current may also flow during braking operation. This is then displayed as negative if the connection is correct.

For measurements in access, the connection must be made in such a way that a positive current / power is displayed during consumption.

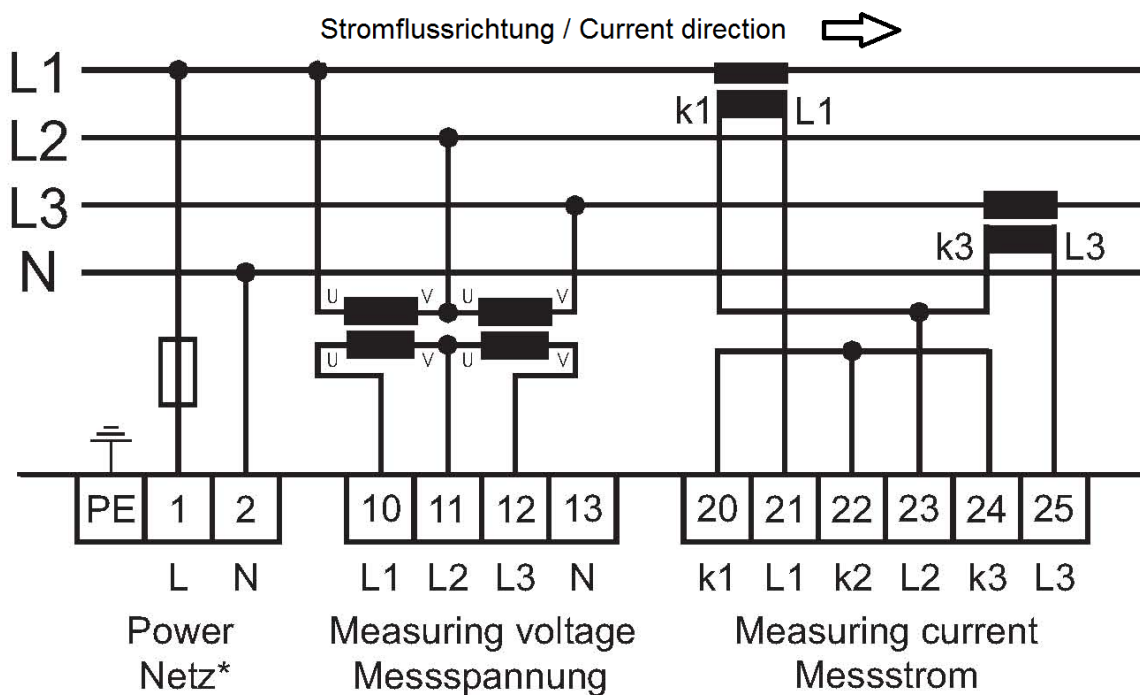
Measurements in self-generation systems must also be connected in such a way that a positive current is shown on the display during operation (=delivery).

The connection in couplings between switchgear is up to the user. However, the drawing object in **visual energy** must be selected so that the current direction is correct. Typically, the switchgear containing the measuring device is therefore defined as the outgoing circuit and the remote station as the incoming circuit and the measuring device is connected accordingly.

Note:

An incorrect connection will result in incorrect control behavior for compensation controllers and incorrect balance totals for measuring devices in the **visual energy** system!

Aron – Circuit



Two compensation systems on a coupled busbar

The following is the converter circuit when two compensation systems are present in a network and are temporarily connected to a common busbar by means of a coupling switch:

“Wandler” = current transformer

