



Transformer monitoring

Machinery current consumption measuring

Transformer monitoring:

The power Lines are monitored externally. The current is measured via the current transformer and the voltage is measured via separate wires. The maximum current level for 3-phase 400V installations is determined by the specification of the selected CT. This configuration is used when current levels are higher than 63 A.

Max current: Defined by CT (X/5A)

Install a current transformer at the main supply and add wires from a terminal block to measure voltage.



Installation must only be carried out by qualified personnel who are familiar with the safety regulations and precautions.

Some of the following tasks are carried out when hazardous voltage is present. For this reason, they must only be carried out by qualified personnel who are familiar with the safety regulations and precautions and who follow the safety regulations and precautions.



Installation Guidelines:

- Wear the prescribed protective clothing.
- Observe the general equipment regulations and safety regulations for working with high voltage installations (e.g. DIN VDE, NFPA 70E), as well as national or international regulations.
- Ensure that the limits given in the technical data are not exceeded, not even during commissioning or testing.
- Short circuit the secondary connections of intermediate current transformers at the transformers before interrupting the current lines to the device.
- Test the polarity and the phase assignment of the instrument transformers.
- Before connecting the device, ensure that the system voltage matches the voltage specified on the type plate.
- Before commissioning, ensure that all connections have been made correctly.
- Before power is applied to the device for the first time, you must place it in the operating room for a period of at least two hours. This allows it to reach temperature balance and avoids humidity and condensation



Hardware required for the installation:

- 1 x 3-phase MCB (Miniature Circuit Breaker) 6A | Siemens 5SL6306-7
- 1 x 3-phase energy meter | Siemens 7KT1673
- 1 x 3-phase current transformer | Siemens 7KT1201
- 1 x signal cable (energy meter to data collector) | M8 connector cable
- 1 x data collector | Factbird Duo or Factbird Omron NX1
- 1 x power supply | Factbird 24V power supply



Electrician material list (not provided by Blackbird):

- DIN rails - if needed
- DIN terminal blocks – if needed
- Cable marking labels
- Cable Lugs
- Various cables/wires to connect the components



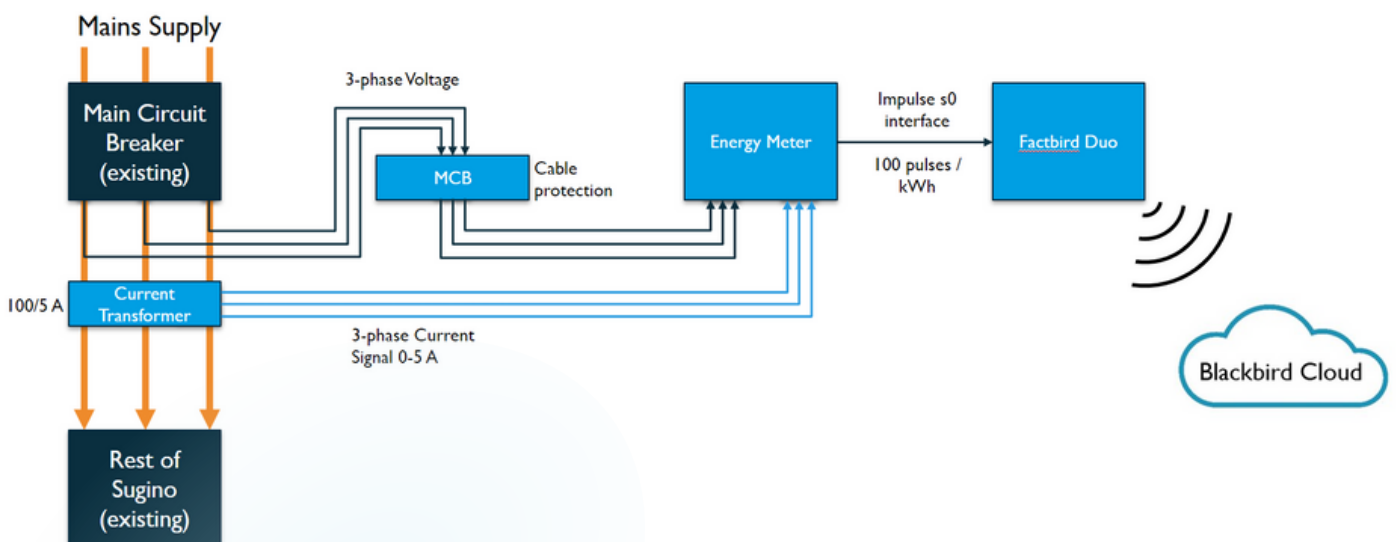
Installation Overview

Please use the steps below as a guideline for installing the hardware.

1. Mount the MCB and Energy Meter in a suitable place in the control cabinet.
2. Disconnect the main supply between the main circuit breaker and the machine.
3. Mount the Current Transformer in a suitable place by the main circuit breaker.
4. Reconnect the main circuit breaker to the machine (with the supply cables running through the Current Transformer) and connect wires from the circuit breaker to the MCB.
5. Connect the MCB to the Energy Meter.
6. Connect the Current Transformer to the Energy Meter.
7. Lastly connect the Energy Meter to the data collecting device e.g., a Factbird Duo, using the M8 connector cable (01+ to black and 01- to blue).

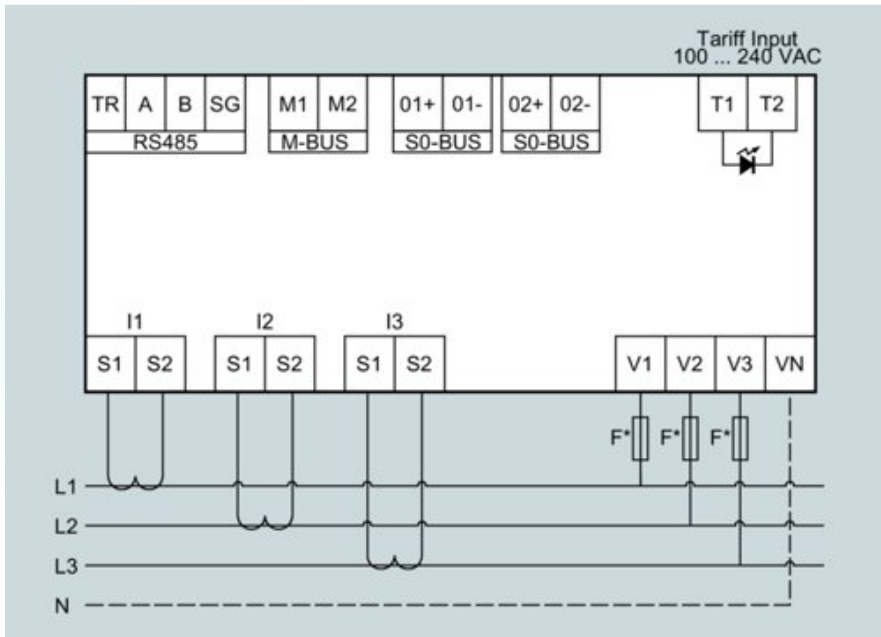
When the setup is completed and the data collecting device has been connected to its dedicated power supply, the physical installation process is completed. For reference see illustration below:

Transformer Monitoring Installation Diagram





Transformer monitoring 7KT1673 energy meter circuit diagram (outputs depend on device type)



Sensor configuration

Parameterization – setting values for relevant parameters

Energy meter 7KT1673 (transformer monitoring)

1. Press the up + down arrow keys simultaneously.
 2. Select “SET” by pressing the right arrow.
 3. Select “P01 GENERAL” by pressing the right arrow.
- When “P01.01” is displayed, press right arrow.
 - Set to “100” (primary current of CT) and press right arrow to confirm.
 - Press down to “P01.02” and press right arrow.
 - Set to “5” (secondary current of CT) and press right arrow to confirm.
 - Press down to “P01.05” and press right arrow.
 - Set to “L1-L2-L3-N” (if N is connected to the energy meter) and confirm.
 - else*
 - Set to “L1-L2-L3” and confirm.
 - Press down to “P11.PUL1.01” and select.
 - Set to “Wh+” and confirm.
 - Press down to “P11.PUL1.02” and select.
 - Set to “100” and confirm.
 - Press down to “P14.PUL1.01” and select.
 - Set to “PUL” and confirm.