

	Operating Instructions	Datum: 06.05.2019
	IGW	Revision 01

Durchführungsstromwandler Type: IGW

Wandlerbezeichnung: IGW ... A10 IGW ... B10
 IGW ... C1 IGW ... D12
 IGW ... D12 IGW ... D2
 IGW ... D3 IGW ... E4
 IGWK ... C1 IGWK ... D2

IGW	(K)	12	C1
Cast-resin insulated support-type current transformer	creepage distance extension	Insulation level	Size

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Contents

1. Safety Guidelines	2
2. Applications	2
3. Failures and critical loading	2
4. Set-ups, Mounting and De-mounting	3
5. Electrical connections.....	3
6. Mechanical Mounting.....	4
7. Maintenance.....	4
8. Repair.....	5
9. Applied standards.....	5
10. General conditions of supply.....	5
11. Appendix.....	5

1. Safety Guidelines

- This operating manual contains information and precaution rules for a safe installation and usage with respect to the mentioned requirements.
- Please read this instruction manual thoroughly!

2. Applications

The current transformers of the type IGW:

- are suitable for medium-voltage switchgears.
- are suitable for indoor usage for ambient air temperature -5°C to $+40^{\circ}\text{C}$.
- are suitable for storage and transport temperature -20°C to $+55^{\circ}\text{C}$

3. Failures and critical loading

- If the equipment safety is not guaranteed, the equipment must be switched off and further usage is prohibited.

The equipment safety may be endangered by:

- o visible damage of housing or terminal lines.
- o improper storage of the transformer. **Attention! Do not store or transport transformer below above mentioned temperature.**
- o transport damage of the transformer.
- o improper mechanical loadings of the current transformer e.g. high pressure loadings and impact stresses by loading with weights (stacking) or by fall from the storage place during transport and installation.
- o improper loadings of the current transformer e.g. overload current loads beyond the rated current or extended rated current respectively as well as short-circuit currents exceeding the indicated short-circuit current in maximum value and duration.
- o The operator has to ensure that the mounted transformer is free from external magnetic fields. Such magnetic fields can be induced, among others, by return conductors or parallel conductors. This may result in serious damage to the transformer.
- o **operation of the current transformer (without burden) in an open-circuit on the secondary side. Danger to life!**

4. Set-ups, Mounting and De-mounting

- Any kind of work is only allowed in a voltage-free state of the transformer.
- Only qualified persons are allowed to carry out any kind of work.
- **Attention!** The current transformers are very heavy. For mounting and transport appropriate lifting tools must be used. The CTs must be secured in the lifting tools. Pendulum movement must be avoided. Do not stand beneath the floating loading.
- **Wear personal protective equipment to avoid bruise and snag.**
- The statutory and occupational safety guidelines must be observed.

5. Electrical connections

- The general national installation standards for electrical installations are to be followed carefully.
- Generally, it has to be guaranteed that no required clearances and creepage distances are shortened by mounting of the current transformer.
- The connections of secondary leads are only allowed with suitable terminals with the sufficient diameter corresponding to the secondary current, taking into account the rated continuous thermal current [Icth] and the rated short-time thermal current [Ith].
- The terminal leads must be adequately stripped. In application of flexible wires it is to be noted that when stripping, the wires need to be ensured by end ferrules or cable shoes. The tightening torque for the secondary screws and the grounding screws is 2,5 Nm.
- An internal ground bus is installed beneath the terminals and the winding(s) can be earthed with the delivered grounding screw(s).
- The secondary terminals are protected by a transparent cover and for revenue metering (billing) usage the cover can be sealed.
- Recommendation to use wire-cross-section:
1 A transformer $\geq 2,5\text{mm}^2$; 5 A transformer $\geq 4\text{ mm}^2$.
- The operator must choose a sufficient primary conductor or primary bus bars based on the primary current. The bus bar temperature shall not exceed 65°C .
- The primary connection should be fixed with the delivered mounting devices.
- The screws M12 must be screw in smoothly with a tightening torque of 40 Nm. The screw depth must not be less than 15 mm.
- transformers with primary winding in 2 sections intended for connections either in series or in parallel. ELEQ delivered such transformer in parallel connection (high ratio).
- In case of parallel connection the jumpers are connected with the primary terminals P1 – C1 and P2-C2. In case of series connection (low ratio) the jumpers are connected at primary terminals C1-C2, see figure 5.1.
- The jumpers should be fixed with the delivered mounting devices (M8 screws) The screws M8 must be screw in smoothly with a tightening torque of 10 Nm.
- The ground plate is internal connected with the ground bus. A ground connection with the ground plate is possible with suitable screws M8.
- It has to be ensured that the current transformers are grounded with a sufficient cross-section grounding conductor.
- The operator has to ensure the safety distances (flashover and creepage distances), see figure 5.2
- **Warning 1: Do not operate with the secondary circuit open-circuited. No fuses are to be used in the secondary circuit. Danger to life!**

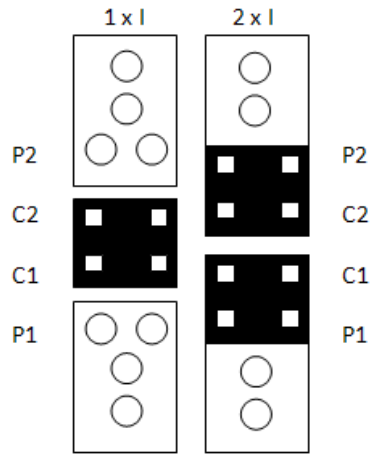


Figure 5. 1

Creepage distance		
Um	m	n
12kV	100	110
17,5kV	160	160
24kV	190	210

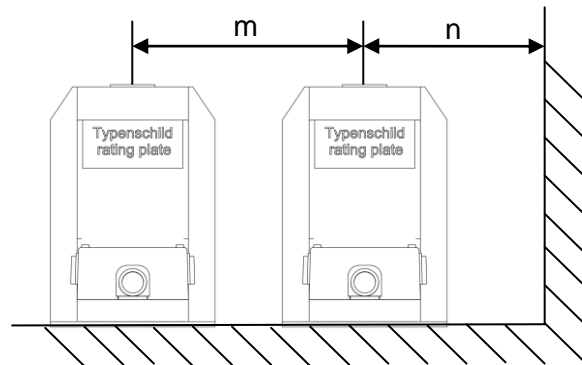


Figure 5. 2

6. Mechanical Mounting

- **Attention:** No damage at the housing may occur during installation procedure.
- The operator is responsible to ensure that the current transformer has to be connected tightly to the fixture avoiding high mechanical load on the transformer.
- The fixation of the transformer is to be performed depending on the size M12 screws (minimum strength class 8.8). The screws (with sufficient length) are to be installed by the operator with shims ISO 7089-10-200 HV and tightened with a clamping torque of 65 Nm. It is recommended to tighten the screws cross-wise. These need to be secured according to the regular standards, e.g. glue.
- The fixture bolts must be protected against loosening (state of the technology) and corrosion must be avoided.
- In case of using primary bus bars the primary terminal surfaces must be completely connected. A tensile stress on the primary terminals must be avoided.

7. Maintenance

The transformer is maintenance free but it is recommended:

- A visible check is to be performed at regular intervals (at least yearly) with reference to damage of the cast resin and electrical connections.
- All electrical contacts including the earth-connections are to be checked in regular intervals (at least yearly) with reference to proper fit.
- All contact- and bolted connections (if applied bolt locks are suitable) are to be adjusted with the according tightening torque.

- All contact- and bolted connections (if applied bolt locks are suitable) are to be adjusted with the according tightening torque.
- All maintenance procedures are to be performed in a voltage-free state.

8. Repair

- It is forbidden for the end-user to perform any repair of the transformer. In any case the transformer has to be sent back to the manufacturer.

9. Applied standards

- General standards
- IEC 61869

10. General conditions of supply

ELEQ delivers exclusive according to ORGALIME S 2012. Should customers have purchase conditions which are beyond or in contradiction with the general conditions according to ORGALIME S 2012, the general conditions according to the ORGALIME S 2012 are in force, unless there is a written declaration of consent of ELEQ for recognition of these conditions.

11. Appendix

ORGALIME S 2012