



Data sheet

KGBEA36 / KGBEI36 as wideband transformers (i.e. with optional extended frequency range)



- **Metal encapsulated wideband combi-transformer with inductive, single-pole voltage and current transformer sections**
- **Optimised frequency transfer characteristics up to 3.15 kHz (63rd harmonic)**
- **Specifically designed for applications in the power quality field**
- **Optionally compliant to the European Measurement Directive (50 Hz)**

Description

Wideband voltage transformer section:

Inductive voltage transformers usually exhibit resonances within a few kHz in the transmission path, at frequencies that are higher than the grid frequency. The position of the first resonance point shifts towards lower frequencies with increasing rated voltage. The measuring accuracy of harmonics and intermediate harmonics with the aid of an inductive instrument transformer in medium voltage grids is therefore limited.

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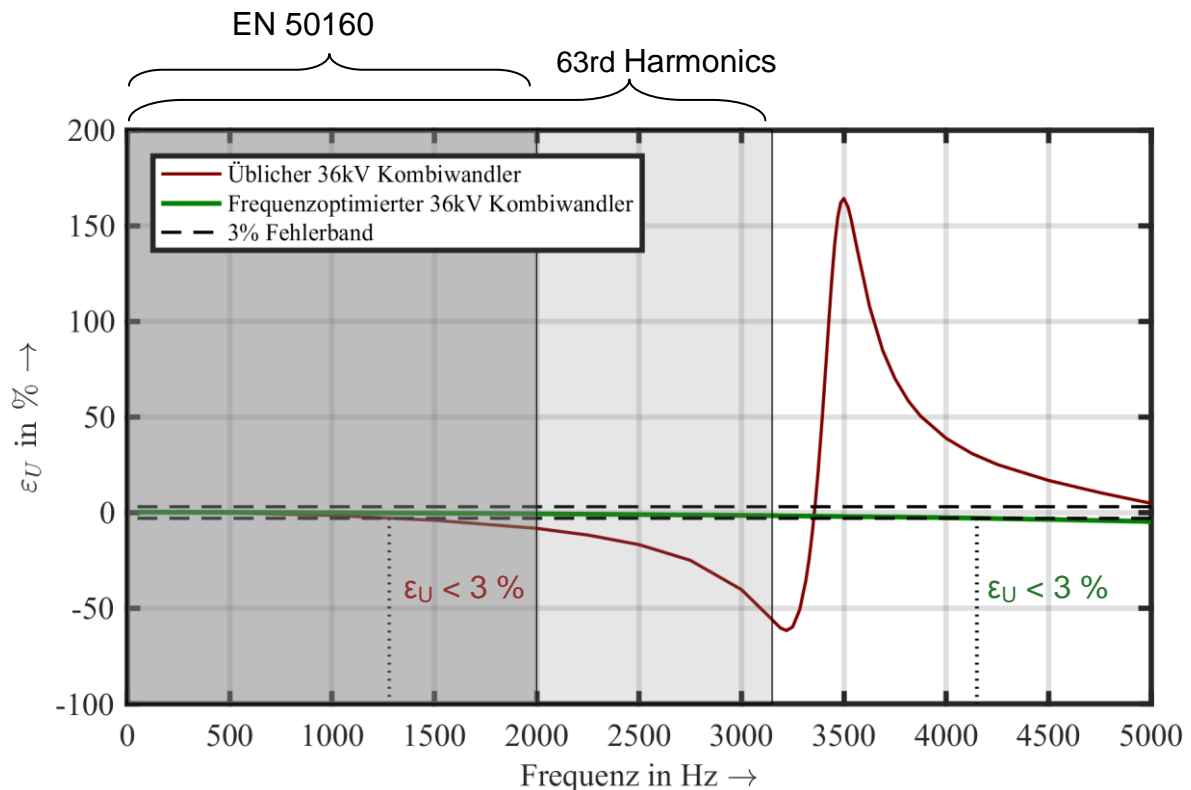


Figure: Exemplary frequency response of the voltage transformer section of the frequency-optimised KGBEA 36 (green line) compared to a conventional KGBEA 36 (red line).

Wideband power transformer section:

The frequency-dependent transmission characteristics of current transformers can be adversely affected by inductive components of load, cable resistance and various core materials.

In our test field current transformers are tested with a suitable wideband connection cable specially suited for HF harmonics. The part of the load which corresponds to the supply cable, must be taken into account by customers when selecting the transformer rating.

General:

The metal encapsulated wideband combi-transformer KGBEA36 with its extended frequency range is optimised for future standards (VDE AR N 4110 and EN 50160) and measurements up to 3.15 kHz. Up to this frequency a class accuracy of ϵ_U and $\epsilon_I < 3\%$ is achieved. In addition to permanent and mobile monitoring of PQ requirements at grid transition points, the KGBEA 36 has also been developed for the purpose of permanently monitoring non-linear equipment, such as inverters in PV and wind parks.

Wideband transformers, however, can also be used in conjunction with electrical energy meters, which can detect actual output beyond of 50 Hz.

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Order reference: "KGBEA36 with frequency option"

General Specification (Example: further data on request)

Standards	IEC 61869-4, DIN 42600
Insulation	36 / 70 / 170 kV
Ambient temperature	-5 °C ... +40 °C
Weight	80 kg
Class of insulation material	E

Current transformer section Rated data for line frequency

Frequency	50 Hz
Primary rated current I_{pr}	5 A ... 600 A
Secondary rated current I_{sr}	5 A, 1 A
Thermal continuous rated current I_{cth}	$1.2 \times I_{pr}$, $1.0 \times I_{pr}$
Output	for example 5, 10, 15, 30... VA
Class	0.2; 0.5; 0.2S; 0.5S; 10P, 5P
Thermal short-time rated current I_{th}	max. 28 kA/1 s
Rated peak current I_{dyn}	$2.5 \times I_{th}$

Voltage transformer section Rated data for line frequency

Frequency	50 Hz
Voltage	$30 \text{ kV} / \sqrt{3}$
Voltage factor	$1.9 \times U_N$, 8 h
Measuring coil (a-n)	$100 \text{ V} / \sqrt{3}$
Output	max. 50 VA
Class	0.2; 0.5; 1
Thermal limit	250 VA_{th}
Earth fault protection (da-dn)	$100 \text{ V} / 3$
Output	100 VA
Class	6P

Current transformer section Additional PQ data

Frequency range	50 Hz ... 3.15 kHz
Accuracy	<3 % (measurement according to the frequency sweep test up to 50 A)
Output	0 ... 5 VA
Resistive load	$\cos \beta = 1$
Included in the scope of delivery: Wideband connection cable	3 m

Voltage transformer section Additional PQ data

Frequency range	50 Hz ... 3.15 kHz
Accuracy	< 3 % (measurement according to the frequency sweep test with 1 % U_N)
Output	0 ... 5 VA
Resistive load	$\cos \beta = 1$

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