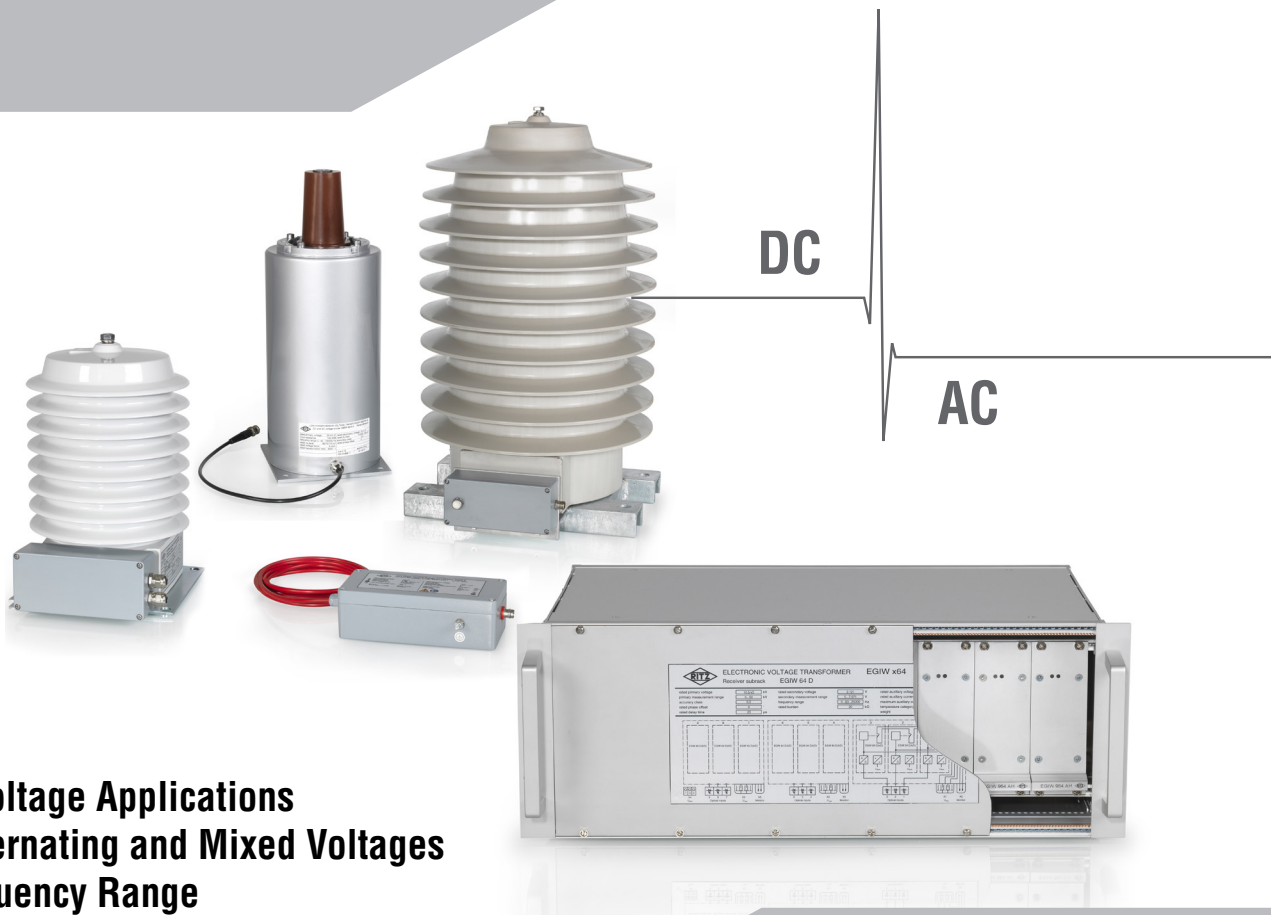
ELECTRONIC VOLTAGE TRANSFORMER

EGIW x64

DC AND AC MEASURING SYSTEM WITH OPTICAL DATA TRANSMISSION



- Medium Voltage Applications
- Direct, Alternating and Mixed Voltages
- Wide Frequency Range

FEATURES

- Up to 9 independent measurement channels
- Optical transmission of measurement data
- Error detection
- High electromagnetic compatibility (EMC)
- High overload capability

APPLICATION

The electronic voltage transformer EGIW x64 measures direct, alternating and mixed voltages with up to nine voltage sensors for e.g. power quality analysis and protection purposes. Its area of application are medium voltage installations like Static VAR Compensators or frequency converter installations.

DESCRIPTION

The EGIW x64 system consists of up to nine voltage sensors, transmitter and receiver electronics.

The voltage sensor transforms the primary voltage U_p to a low voltage, which is digitized inside the electronics and transmitted to the receiver via an optical transmission path. On the secondary side, the received optical data is converted to an analog voltage corresponding to the high voltage on the primary side divided by the rated transformation ratio.

Due to the optical transmission, a high galvanic isolation is achieved between the primary and secondary side. It makes the system highly resistant against heavy electromagnetic interference and disturbance.

Auxiliary power supplies (U_a) are required to run the transmitter and receiver electronics. The system includes a monitoring function, which detects power supply as well as data transmission failures and out-of-range measurements. In those cases, the error is indicated by relay status and LEDs.

TECHNICAL DATA

General

Type	EGIW x64
Application	Power quality analysis, protection purposes
Design	- Voltage sensor with transmitter EGIW 64 S - Optical link - 19'' subrack EGIW 64 D with receiver modules EGIW 64 DA or EGIW 64 DD
Functional principle	Voltage divider
Standard	IEC 61869-6 / IEC 60044-7

Available Versions

EGIW 964	with GSER 16, up to 36 kV
EGIW 1064	with GSER 52, up to 72,5 kV
EGIW 1164	with GSER 3, up to 6 kV
EGIW 1264	with GBERA 12…36, up to 36 kV

Electrical Data

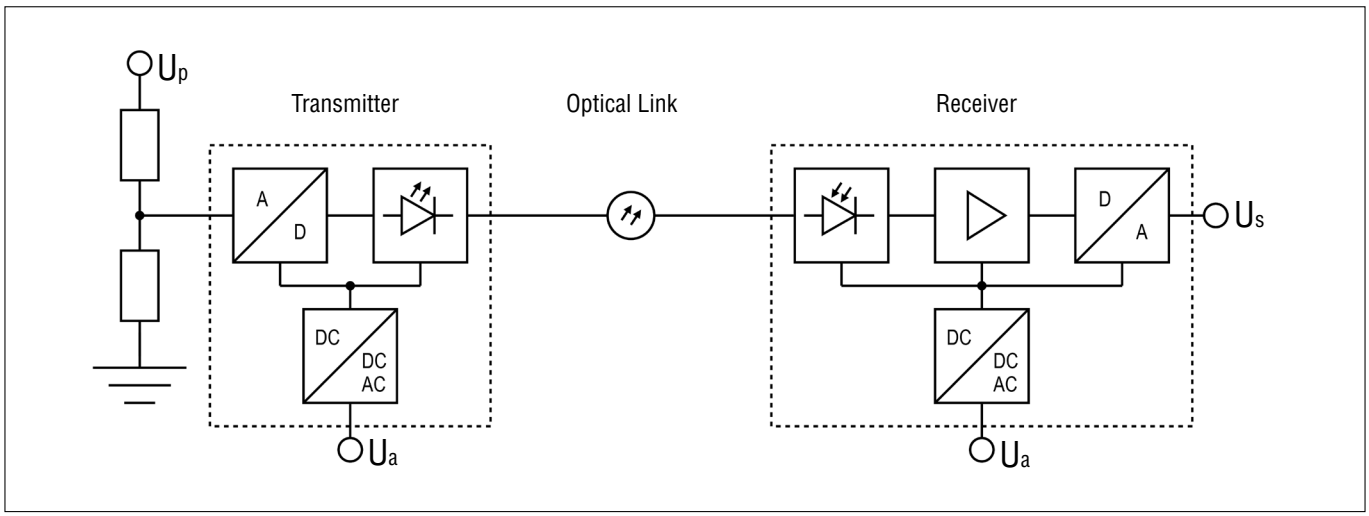
Input

Rated primary voltage	U_{pr}	see sensor data
Primary voltage range	U_p	0–U_m (1)
Highest voltage for equipment	U_m	6–72,5 kV
Primary capacitance (±20 %)	C_1	see sensor data
Primary resistance (±5 %)	R_1	see sensor data
Rated frequency	f_r	50 / 60 Hz

Output

Rated secondary voltage	U_{sr}	3,25/√3 V (2)
Secondary voltage range	U_s	0–7,07 V
Rated burden	R_{br}	2 MΩ || 50 pF (2)
Burden range		20 kΩ–∞ || 0–2 nF
Max. secondary current	I_{smax}	30 mA, short-circuit proof
Max. secondary voltage	U_{smax}	< 20 V

SCHEMATIC CIRCUIT DIAGRAM EGIW x64



(only one measurement channel shown)

Accuracy (3)

Accuracy class		0,5
Accuracy up to 500 Hz		±0,5 %
Cutoff frequency (-3 dB)	f_c	25 kHz
Rated delay time	t_{dr}	23 µs
Rated phase offset	ϕ_{or}	0’
Signal-to-noise ratio	SNR	63 dB
Max. offset error		±5 mV

Auxiliary Power Supply

Aux. supply voltage	U_a	24 / 120 V (DC) 230 V (AC)

Optical Connection

Connector type	FSMA
Cable type	POF 1 mm
Cable length	10 – 50 m
Data rate	5 Mbit/s
Wavelength	660 nm

Monitoring System

Detection	Supply voltage and transmission failures, out-of-range measurements
Error indication	Relay status through relay contacts and LEDs (per group of 3 sensors)
Delay time, on or off	≤ 1 s
Max. switching current	3 A
Max. switching voltage	30 V (DC), 250 V (AC)

Electrical Isolation

U_p vs. U_s	via optical fibre
U_a vs. electronics	4000 V (rms, transmitter) 500 V (rms, receiver)

Insulation level

Power frequency withstand	see sensor data
Lightning impulse withstand	see sensor data

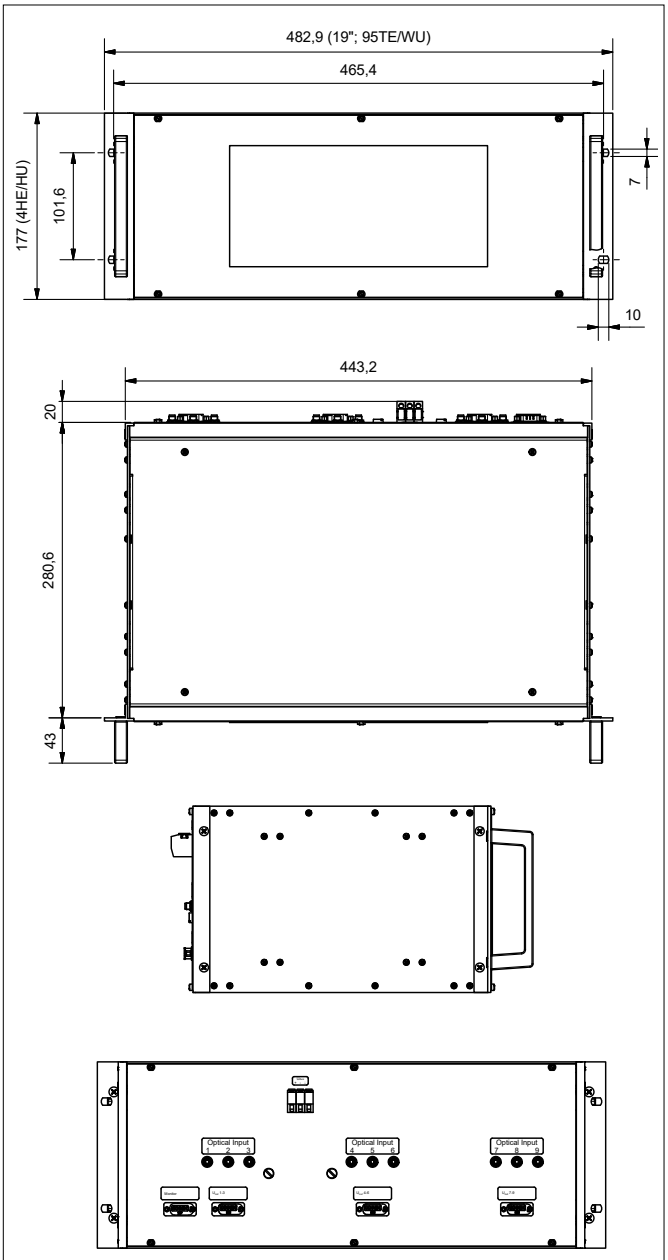
Service conditions

Environment	Indoor
Operating temperature (transmitter)	-40 – 65 °C
Operating temperature (receiver)	-25 – 40 °C
Storage temperature	-40 – 85 °C

Mechanical Data

Creepage distance	see sensor data
Flashover distance	see sensor data
Insulator color	see sensor data
Size (L x W x H, receiver subrack)	483 x 370 x 177 mm
Weight (receiver subrack)	approx. 10 kg

OUTLINE DRAWING



All dimensions in mm.

NOTES:

(1) For higher voltages, contact RITZ
(2) Example value, other values on request
(3) Better accuracy possible; depends on temperature range and pairing of transmitter and receiver modules

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We are the leading specialist for instrument transformers, cast resin parts, solid bus bar systems and power transformers.

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