

Main product features

- The Jomitek Voltage Amplifier features a very compact all-in-one voltage test point and indicator solution for substations, including:
 - 3-phase capacitive test point interface
 - 3-phase voltage amplifier/transformer
 - 3-phase LED voltage indicator - no power need
 - 3-phase 1.0 VA push-fit outputs w/ ground
- No external voltage transformers required
- Input operating range: $\sim 3.3\text{-}50\text{kV}$ / $2\text{-}100\text{pF}$
- Nominal output: $100/\sqrt{3}\text{V}$
- NGS 94 form factor ($4.8 \times 9.6 \times 12.8\text{cm}$)
- Life time 20+ years with no calibration need
- 50/60 Hz compatible
- Linear frequency response to 2500 Hz
- [Optional] MODBUS via RS-232/485 interface

Illustration



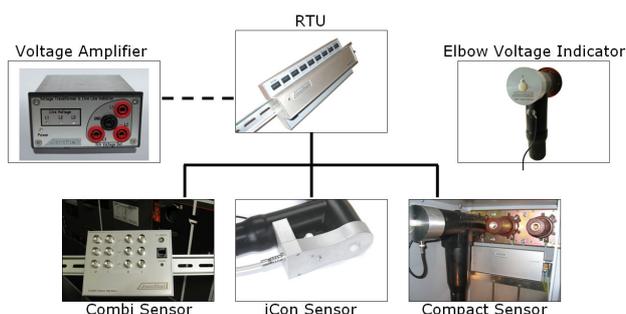
Product family context

The *Jomitek Voltage Amplifier* is a fully integrated stand-alone voltage test point, with the possibility of connecting to a Jomitek RTU via the MODBUS protocol.

The product is an add-on, or alternative to the Jomitek substation automation sensor suite (featuring the *iCon*, *Compact* and *CSI* systems). Depending on the physical setup constraints and already installed equipment, the suite will offer an easily installable plug-and-play solution.

The suite has a common communication interface towards i.e. the *Jomitek RTU*. This eases transparency and homogeneity in the SCADA architecture, promoting the use of the best sensor solution in the local environment while maintaining simplicity at the top supervision level.

The Jomitek substation automation sensor suite, including RTU



General description

This capacitive voltage amplifier and transformer provide an extremely compact test point for exact measurements of the voltage and phase of a 3-phase medium voltage cable section. It eliminates the much more bulky industry standard measurement transformers, and the need for a full 'transformer section' in the substations, as it interfaces directly to the capacitive test point via a BNC RG-58 cable connection.

As an optional feature, the voltage amplifier may also connect to an RTU for remote surveillance of voltage, phase and derived data, such as voltage quality reporting, THD measurements, and FFT analysis.

A wide range of measurement input voltages are supported by the use of a calibration card, made in the SD memory card form factor. The card is easily exchangeable, making the voltage amplifier box itself a universal fit within the specified voltage range. This is further supported by the wide 24-220 VDC input range for the power supply.

Technical specification

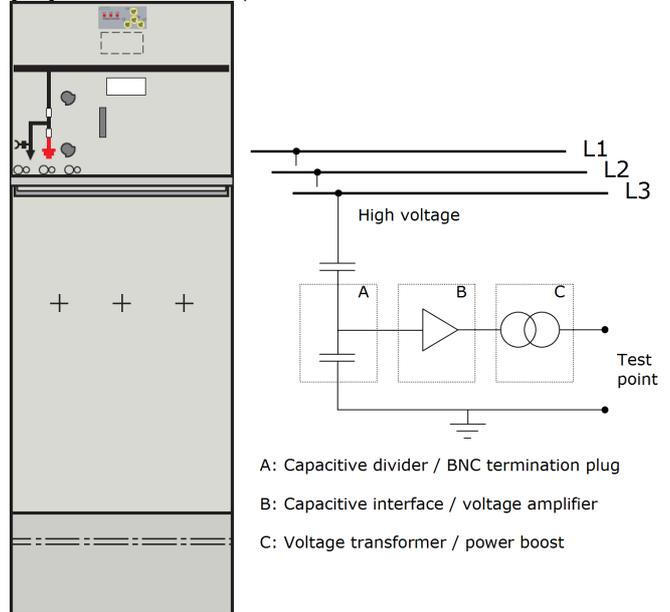
Power supply	24-220VDC / max 10W
Measurement range	
- Voltage, max.	~3,3-50kV RMS
- Frequency range (flat)	5-2500 Hz
Measurement accuracy	
- Voltage, uncal., absolute ¹	2.5%
- Voltage, cal., absolute	1%
- Voltage, relative	0.1%
Measurement specifications	
- Voltage	0.1-2xNominal
- Power	1VA
Measurement output	100/√3V @ nominal HV
Interface	[Optional]
- Local to RTU	MODBUS via RS-485
Mechanical properties	
- Long term temp. range	-40 to +65°C
- Short term temp. range	-40 to +100°C
- Expected lifetime	20+ years
- Calibration stability	20+ years
Dimensions (excl. T-connector)	4.8×9.6×12.8cm

¹ Screened elbow connector assumed. If non-screened, expect 5-10%

Installation guidelines will be provided on request.

Schematic

[Left] Box mounted in the top of a standard Siemens 8DJH cable section



[Right] Functional schematic of the Jomitek Voltage Amplifier

This device fulfils below standards:

EMC directive

- Emission: EN 50081-2:1993
- Immunity: EN 61000-6-2:1999

International Protection Rating (IP Code)

- IP51 (dust protected, dripping water)

Configuration and interfacing

The capacitive interface is connected at the back of the box using a standard BNC female connector from the capacitive test point.

The box can easily be reconfigured from its default settings to another nominal voltage, by exchanging the SD form factor calibration card (Scaling PCB)

The card installed must match the nominal voltage to be measured (within the range ~3.3-50kV), in order to output the intended 100/√3V RMS voltage at nominal voltage operation of the high voltage line.



The 3 inputs are connected to the 3 capacitive connections on the bushings