

Standard Air Capacitor 10 nF / 2 kV

Type CL-0N10-K201

User's manual

Table of contents

1 Safety precautions

1.1 Safety

1.2 Safety precautions

1.3 Impaired Safety Precautions

2. Introduction

2.1 Function principle

2.2 Description

2.3 Use of the capacitor

3. Technical Data

3.1 Ordering information

4. Operation

5. Service

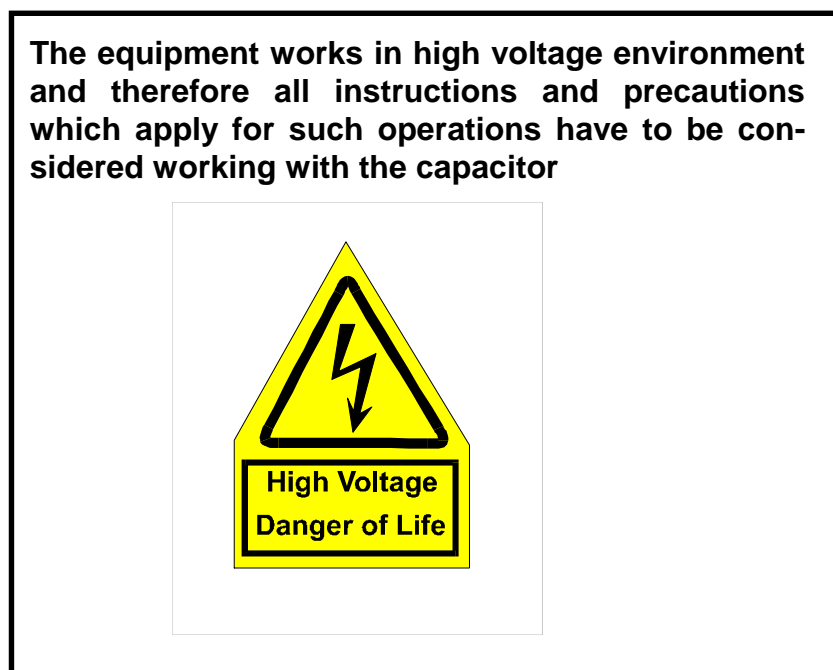
1 Safety precautions

1.1 Safety

The capacitor described in this manual is designed to be used by properly trained personnel only. Adjustment, maintenance and repair of the exposed equipment is to be carried out only by qualified personnel aware of the hazards involved.

1.2 Safety precautions

For correct and safe use of this capacitor it is essential that both operation and service personnel follow generally accepted safety procedures in addition to the safety precautions specified in the manual. Specific warning and caution statements, where they apply, will be found throughout the manual. Safety is the responsibility of the user.



1.3 Impaired safety precautions

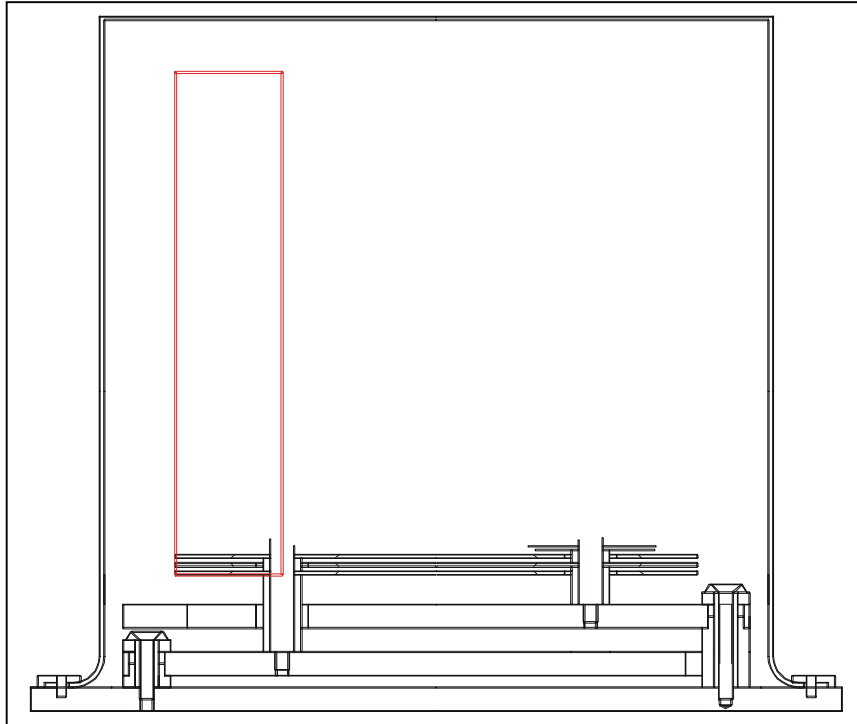
Whenever it is likely that safety protection has been impaired, the capacitor must be made inoperative and be secured against any unintended operation. Safety protection is likely to be impaired if, for example, the instrument fails to perform the intended measurements or shows visible damage.

2. Introduction

2.1 Function principle

The capacitor is a conventional plate - type unit:

Reference: B. Hague: Alternating Current Bridge Methods. Fifth Edition, Sir Isaac Pitman & Sons, LTD. 1962 pp. 163, b: Giebe's plate air condenser.

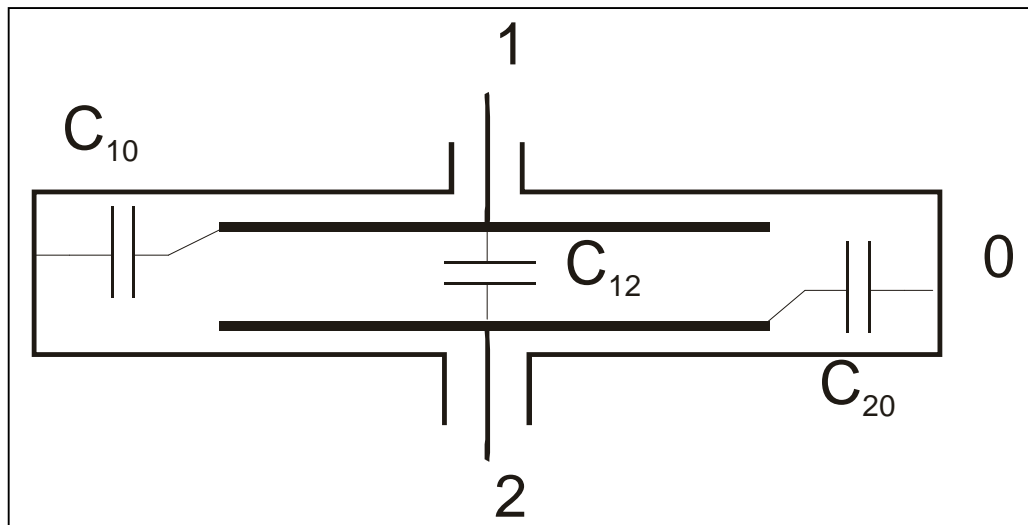


The capacitor consists of rustless steel plates. The materials, holding distance between the plates is selected in such a way, that the temperature dependence of the capacitance is very low.

The insulating air is under atmospherical pressure, but a high tech humidity absorbing material keeps the inside air dry, because it the protecting cup is sealed.

2.2 Description

The standard capacitor has three electrodes:



- Electrode "1" is the HV plate -group,
- electrode "2" is the LV plate -group
- Electrode "0" is the protecting housing

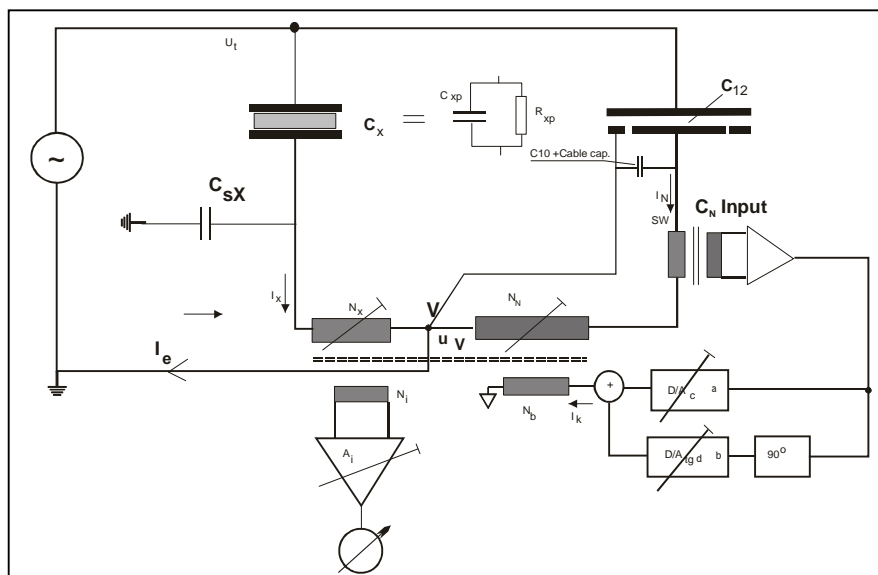
The main capacitance is C_{12} .

C_{10} and C_{20} are stray capacitances, the application has to reject their influence.

2.3 Use of the capacitor

The standard capacitor can be used with the following bridge types:

2.3.1. Current comparator measuring instrument, with low input impedances:



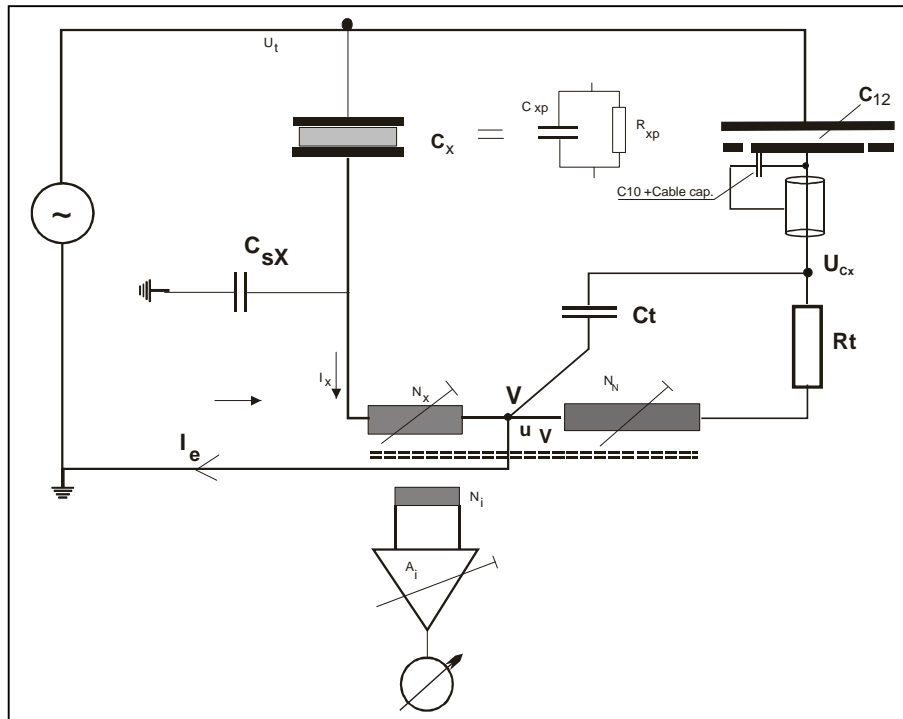
This Bridge uses a balanced inductive current comparator, therefore at the C_N input, there is only a very low voltage. Thus the effect of C_{10} can be neglected.

Such types are:

Presco, TG-1MOD, TG-3MOD, TG-4 and TG-5

Tettex: 2809, 2876, 2877

2.3.2. Current comparator measuring instrument, with H&B tan delta balancing::

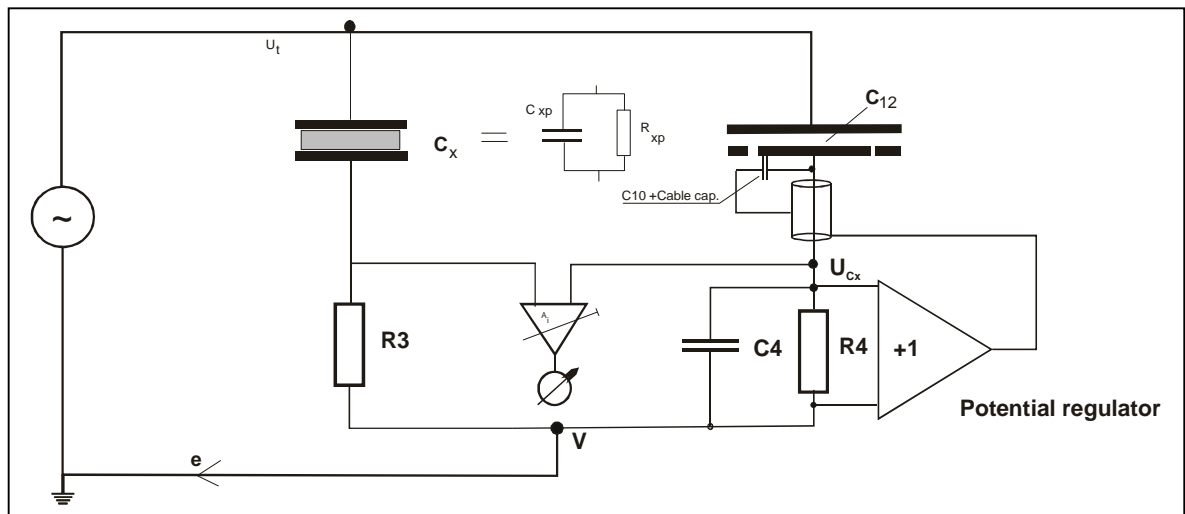


At the C_x input there is a potential "Ucx", therefore the C_{10} capacitance, the capacitance of the connection cable and the internal stray capacitances must be compensated. Using this type of the bridges a "matching box" with a compensating capacitor at the C_N -input must be used. The capacitor in this box is to be calculated according to C_{10} and the other stray capacitances.

Such type is:

Tettex 2805

2.3.4. Schering bridge



The voltage on the screen and the "0" electrode of the standard capacitor is kept at the same potential as the U_{Cx} terminal of the bridge.

Such type is:

Tettex 2801

3. Technical Data

Nominal capacitance	10 nF ± 20%
Nominal voltage	2 kV peak value /√2 *)
Test voltage 1 min.	2.4 kV peak value /√2 *)
Dissipation factor at 50 Hz	< 10 ⁻⁵
Temperature coefficient capacitance	< ±10 ppm / °K
Voltage dependency capacitance	< 5 ppm up to nominal voltage
Long term stability	< 50 ppm / year

*) equal to the RMS value if voltage signal is a pure sine

Reference Conditions:

According IEC 359

Temperature 23° C ± 2° C

Humidity, non condensing 45 ... 75%

Air pressure 101.3 kPa

Rated range of use

According IEC 359

Temperature 10° C ... 30° C

Humidity not condensing 5 ... 90 %

Air pressure 70 ... 106 kPa

Dimensions W 370mm x L 370mm x H 420 mm

Weight 32 kg

3.1 Ordering Information

Standard Air Capacitor 10nF / 2 kV

Type CL-0N10-K201

Scope of supply :

1 Capacitor

1 User's manual

1 Test certificate

4 Operation



Connect the HV connector by a LEMO connector and 2 kV cable to HV source as it described above.

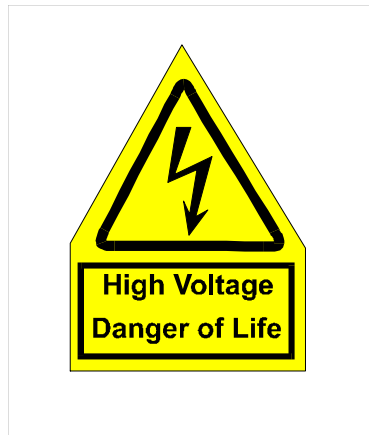
Connect the LV electrode by a LEMO 3 connector and a 2 kV cable to HV source as it described above.

The screens of the connector are connected galvanically to the outside metal parts of the capacitors.

These outside metal parts: the plate and the cap must be always on earth potential or on a lower potential than 24V !

Danger of life if there is no earth!

The equipment works in high voltage environment and therefore all instructions and precautions which apply for such operations have to be considered working with the capacitor



5. Servicing

Opening the capacitor unit will destroy the calibration!

Repair work and maintenance can only be done by qualified personnel of Presco AG. In case of problems please contact the representative which delivered the instrument or Presco AG directly.