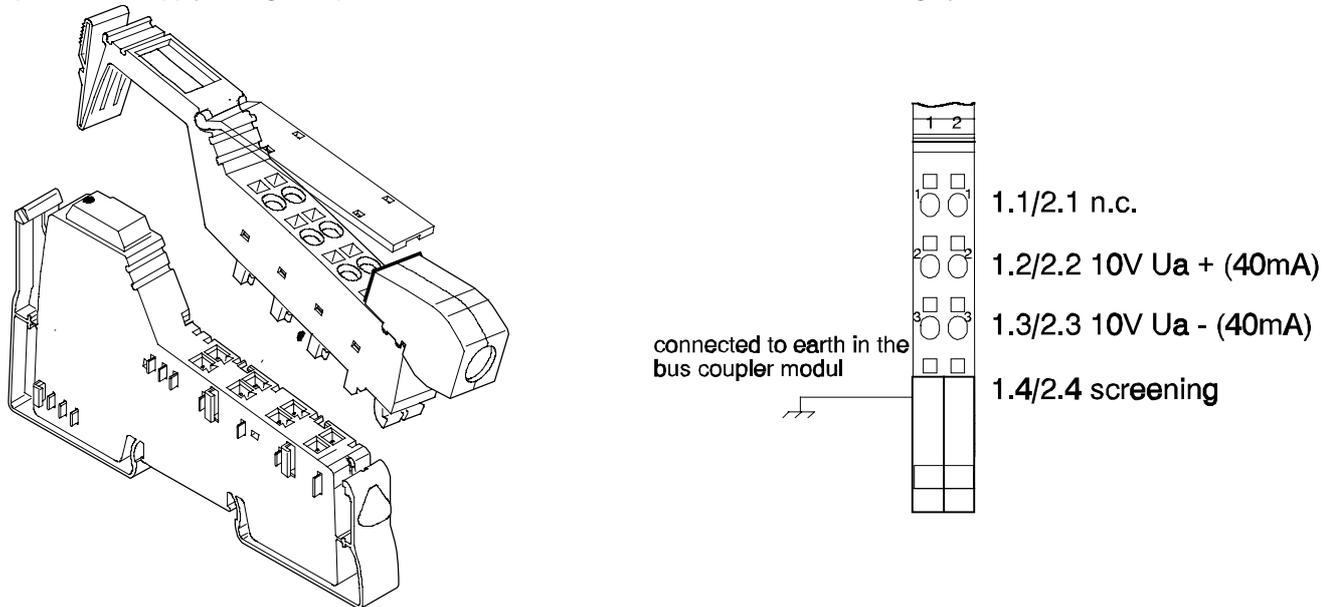


# Power supply module for sensors, VARIO CO 2/U, order no. KSVC-103-02221

## 1 General

The vario power supply module for sensors is used for energizing transmitters, especially strain gauge or semi-conductor bridges for pressure sensors within the KS vario/vario system.

The module provides a supply voltage for pressure sensors, which is isolated from the remaining system.



## 2 Technical data:

<b>Supply voltage:</b>	24 V d.c. (from the analog voltage (U <sub>ana</sub> ) of the vario station.
<b>Current consumption:</b>	approx. 120 mA
<b>Output voltage:</b>	2 x 10 V d.c. constant voltage outputs for energization of 1 or 2 strain gauge pressure sensors
<b>Output current:</b>	2 x 40 mA or 1 x 80 mA. The sum must not exceed 80 mA.
<b>Accuracy:</b>	typ. 0,6 %
<b>Drift:</b>	typ. 0,3 %
<b>Short circuit protection:</b>	max. 1 h
<b>Galvanic isolation:</b>	isolated from the supply voltage (U <sub>ana</sub> ), outputs galvanically connected.
<b>Display element:</b>	1 LED, yellow, for indication of the output voltage
<b>Connection technique:</b>	cage clamp, 2-wire connection with screening
<b>Dimensions:</b>	12,2 x 120 x 76 mm
<b>Weight:</b>	approx. 70 g
<b>Temperature range:</b>	operation: -25 °C to 55°C storage/transport: -25 °C to 85 °C
<b>Humidity:</b>	operation/storage/transport: average 75 %, 85 % occasional
<b>Protection type:</b>	IP20 to IEC 60529
<b>Bus interface:</b>	not required, however, the internal bus is looped through the module.
<b>Accessories:</b>	connector, inscription field (delivered with the unit)

## 3 Pressure sensor connection

Normally, pressure sensors consist of a full bridge circuit which must be energized by a voltage galvanically isolated from the system. The diagonal voltage is applied to a controller module input (mV), which is configured accordingly.

Sensor calibration is by means of a built-in resistor of a defined value in the pressure sensor. Without pressure applied, the resistor changes the bridge resistance so that 80 % nominal output voltage are available at its output. The relevant values are given in the pressure sensor data sheet. This resistance can be connected in parallel to a bridge arm by an external relay, whereby this ??? resistance change is caused.

The following relay modules are provided:

VARIO relay output module VARIO DO 1/230, order no. KSVC-102-01211 or VARIO relay output module VARIO DO 4/230, order no. KSVC-102-01231.

These modules permit control of the relay, i.e. bridge resistance change, via the system bus.

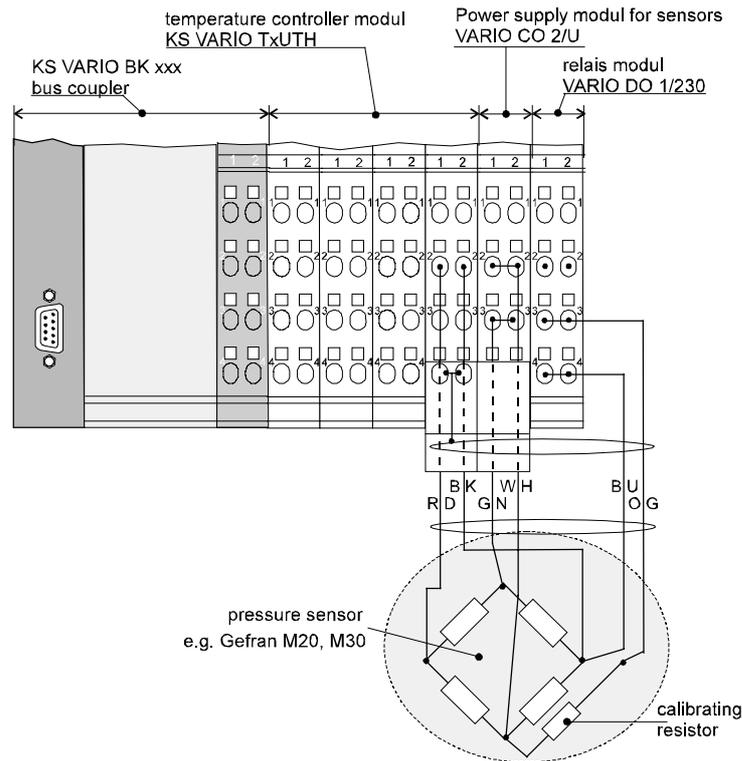
When using these relay modules, the following information must be taken into account:

For using the module for switching the calibrating resistor, the only load must be the calibrating resistor. The sparks generated by higher currents/voltages cause contact consumption and increase the contact resistance, i.e. correct switching of a "dry circuit" is not ensured any more. The relay modules should be always at the right end of a KS vario station. In these modules, the voltage U<sub>b</sub> and U<sub>s</sub> (both 24V) are interrupted. Consequently, these voltage would have to be fed in again behind the relay module.

The connector of a relay module (colour: median gray) must not be plugged into other modules, because when using for purposes varying from the "calibrating relay", higher voltages (230 V AC) may also be applied to the contacts. These can destroy the components of the contacted module components unless plugged in correctly.

Although this connector is coded mechanically for protection against being inserted completely into other modules by closing of contact holes 1.1 and 2.1, electrical connections can occur even with partial faulty connection.

For extending the cable fitted to the pressure sensor, the same or a very similar cable type must be used (6-wire, screened). The screening earth connection must be made via the **function earth (FE)**. The screening is connected to earth only with a non-interrupted connection up to the bus coupler module provided. (The function earth is looped through all modules and connected to earth centrally at the bus coupler module).



#### 4 Maintenance and behaviour in case of fault

The power supply module for sensors and the relay module do not need particular maintenance and no components require any preventive maintenance or care.

##### 4.1 Trouble shooting

To start with, all possibilities of trouble sources due to connected instruments and cables (input leads, wiring, equipment connected in the output circuit) should be checked. Unless the trouble was found after these checkings, the instrument must be returned to the manufacturer:

**PMA Prozeß- und Maschinen-Automation GmbH**  
**Service-Abteilung**  
**Miramstraße 87**  
**D 34123 Kassel**  
**49 561 505 1307**

If the trouble is found to be due to failure of a fuse, the cause must be determined and corrected. The spare fuse must have the same rating as the original type.

Unless the LED is lit despite intact fuse and correctly connected supply voltage, the bus coupler is defective and must be returned to the manufacturer for repair.

##### 4.2 Shut-down

**Before disconnecting the unit, disconnect the system completely from the supply voltage and check that other equipment connected in the overall system is not effected.**

#### WARNING!

**When the instrument is suspected of being unsafe, it must be taken out of operation and protected against accidental switch-on.**

#### WARNING!

##### 5. Relevant for U<sub>L</sub> only

Ambient temperature max. 55° C

Temperature range of the cables 60/75° C

Use copper conductors only for power supply connection.  
 to be used in a pollution degree max. 2 environment.

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