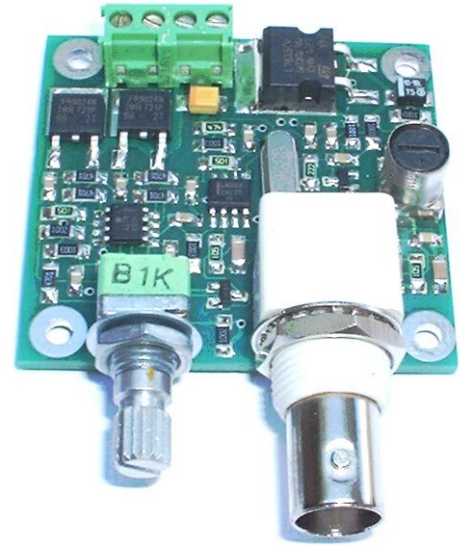


Oxy torch height control For profile cutting machines -Height sensor.

Features:

- DC 24V output for driving up / down relays
- Constant torch height control done by means of measuring the capacitance between sensing ring and plate.
- Single DC 18 to 25 volts supply.
- 1.8" * 1.9" assembled PCB.
- BNC type connector for sensing ring.
- 4 wire interface to drive system:
 - 0 V - common
 - +24V - supply
 - +UP - output
 - +DOWN - output
- Cable fault detection - open, short.
- Internal adjustment for set-up.
- External adjustment for fine-tuning.
- Low cost



DESCRIPTION: The R982A height control is an interface between metal ring surrounding the Oxy cutting torch and drive system for up and down movement of the torch lifter.

SENSING RING: The metal ring is connected to the R982A via a 500 mm long 50 ohms coaxial cable (RG316U or equivalent; OD 2.5 mm PTFE 96 pF/meter). The size of the ring should be around 3000 mm², typically, ID 50 mm and OD 80 mm of the ring. Nominal height of the ring should be between 5 to 20 mm above the plate. Thickness of ring is not critical nor the distance from the ring, to the end of the coaxial cable. The typical thickness of material for ring is 3 mm a distance from ring to end of the coaxial cable is 20 cm. The ring must be insulated from all conductive parts of the cutting torch and must be connected to the middle core of the coaxial cable. End of the cable **must be terminated** with a 1 Mega-Ohms resistor. See picture on the next page.

INTERFACE: The connection of supply/outputs to the R982A sensors is via 4-core cable. A screened cable should be. The supply is a nominal DC 24 volts (18 - 35 volts). The power consumption is less than 50 milli-amps. The up and down outputs are P-channel mosfets (Ron = 0.2 ohms, Id < 4 amps). These outputs can directly drive coils of 24 volts relays or digital inputs of NC/drive control or they might be used as high side half of the bridge driver.

CONNECTOR PINOUT:

| Pin No | Name | Description |
|--------|------|--|
| 1 | 0V | Negative supply (SQUARE PAD) |
| 2 | +24V | DC +18 to +35V power supply input |
| 3 | +DN | Output to drive relay for down movement. |
| 4 | +UP | Output to drive relay for up movement. |

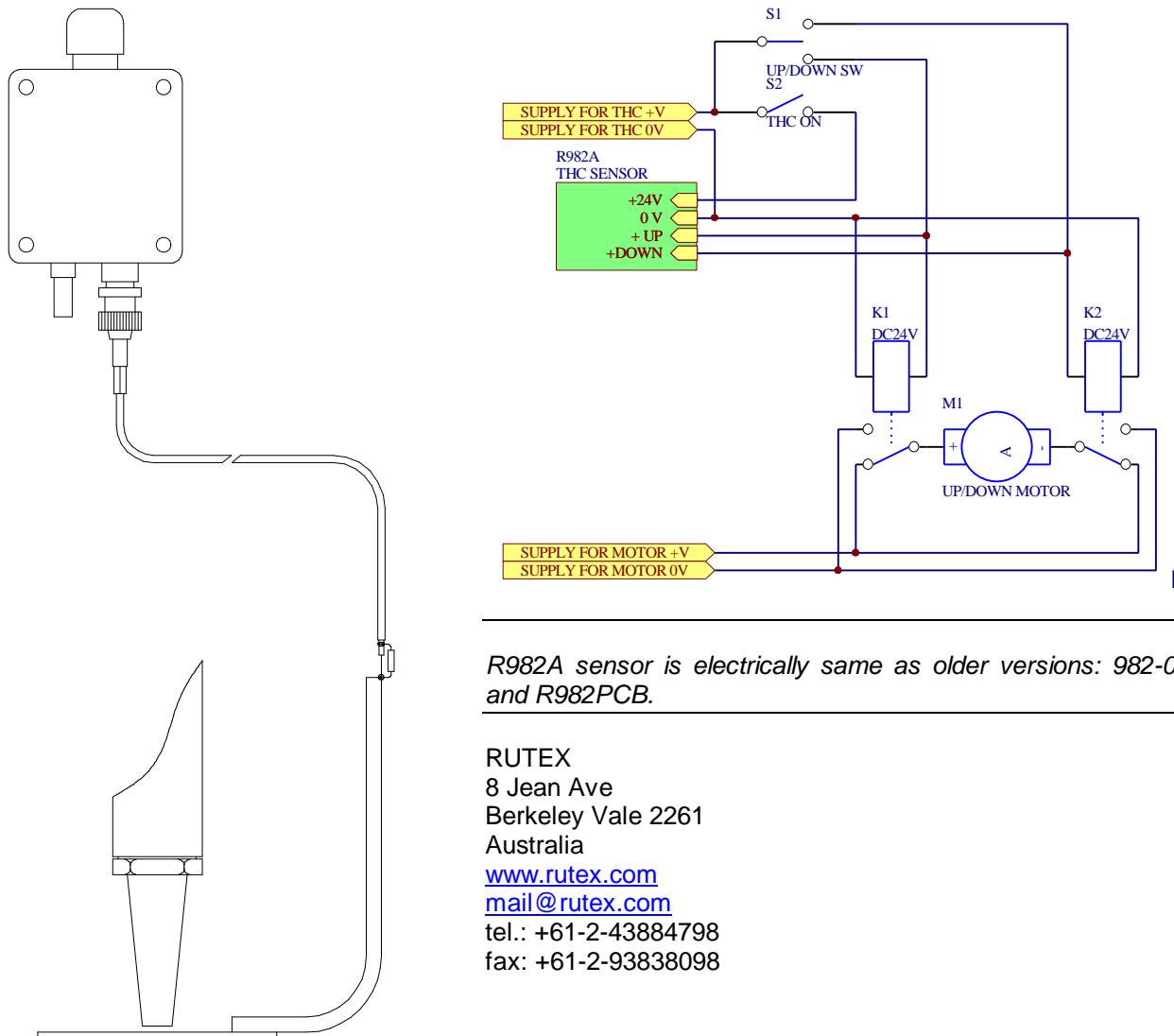
GROUNDING: The R982A sensor is floating. There is no requirement that external power supply must or must not be grounded. The internal circuitry is connected to the mounting holes of R982A via a 1nF/500V capacitor. These mounting holes must be connected to the cutting plate. Usually the sensor is bolted to the

housing of torch lifter and cutting table must be connected to the frame of the machine, what makes a sufficient connection.

ADJUSTMENT: Set adjustment pot to middle position. Manually adjust the torch lifter, so the ring is about 20 mm above the plate. Disable the drive system (e.g. electrically or mechanically disconnect motor). Activate THC and monitor up and down output. Gently adjust the core of internal coil of R982A sensor so no up or down output is activated. Decrease the distance between sensing ring and plate and verify that up output is activated. If down output is activated instead of up readjust the core of the coil and find second "0". Disconnect BNC connector and verify that up output is activated. Reconnect the drive system.

The correctly adjusted sensor should activate outputs if error is about plus or minus 10 % of nominal height. This makes about +/- 0.5 mm at 5 mm above the plate up to +/- 2 mm at 20 mm.

APPLICATION: Below is simplified typical connection of R982A sensor. The limit-switches can be connected in series with motor as normally closed bridged with a power diode, which allows to drive motor only opposite way of position of the limit switch. A power resistor of few ohms should be connected in series with motor to avoid the burning of contacts of relays and brushes of motor. Small electrolytic capacitors can be connected in parallel with each relay. This will increase the hold time of the relay.



R982A sensor is electrically same as older versions: 982-000 and R982PCB.

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