

**Pievox**

# **Quartz-Control for Studer A 80**

**PLL-Synchronizer for Studer A 80 / A 81**

**Precision control for Capstan motor of the A 80 / A 81  
to 800,0 Hz / 1600,0 Hz .**

Applicable for Studer tape recorder using Capstan-Speed Control PCB  
1.080.372 and 1.080.374

Series  
A80 R  
A80 RC MKI + MKII  
A80 VU MKI ...IV

and A81

Versions 19 / 38 cm/s ( 7 1/2 / 15 ips)  
and 38 / 76 cm/s (15 / 30 ips)

**Not applicable:**  
**A80 MR**  
**A80 QC**

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## **Technical data of the Pievox Quartz-Control**

Accuracy of the quartz reference

800 Hz +/- 0,01 Hz over temperature range 10 - 35 degree C

For use with highspeed 15 / 30 ips (38 / 76 cm/s ) A80 machines  
there is a jumper to set from „std“ to „38 / 76“

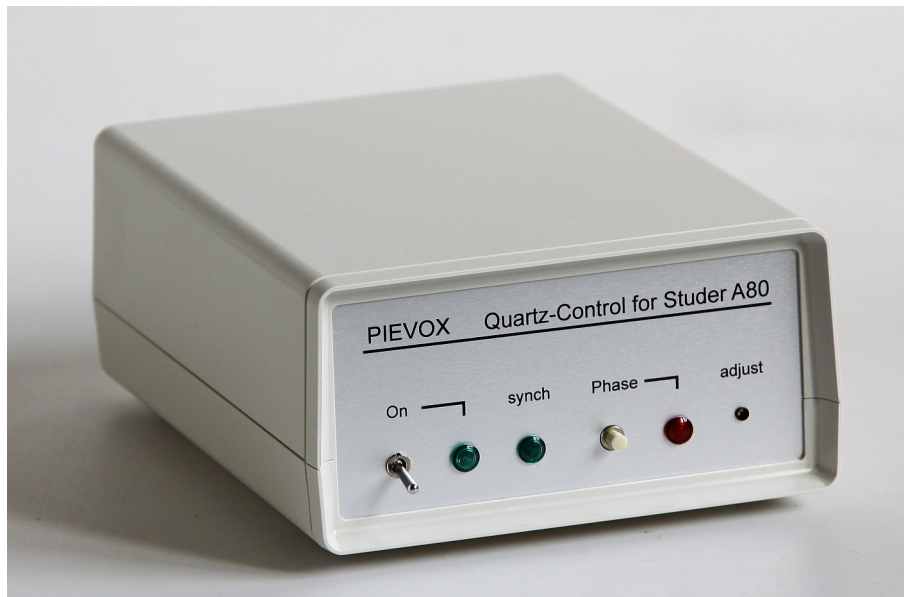
Current consumption from the 24V line of the A80 Capstan speed control connector:

Power-off state ca. 10 mA

Power-on state max 60 mA

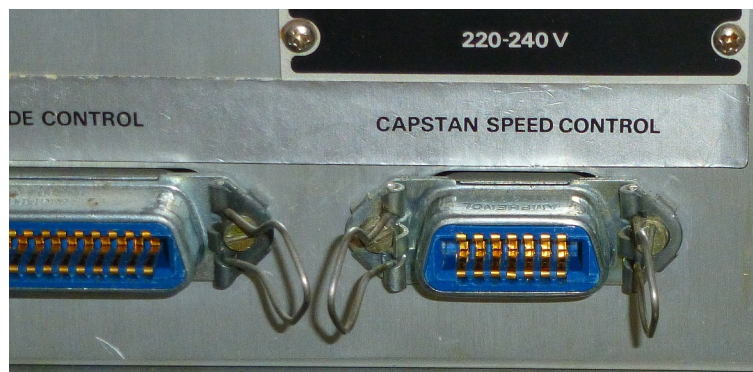
## **Standard delivery content:**

1. This technical manual
2. Connecting cable length 90cm D-Sub 9pol -f to Centronics 14pol connector
3. Extension cable 2m type D-Sub 9pol m - f with parts for secure screw connection
4. Tool for phase adjustment



### Purpose of the A80\_Quartz-Control

- ☞ unique as an external accessory to connect to your Studer A80s prepared with a "Capstan speed control" socket.
- ☞ No change is necessary in respect to adjustments on the A80 Speed control PCB.
- ☞ No changes on your A80.



The standard version of the **A80 Quartz-Control** is ready for use with the A80s in the speed version 7 1/2/ 15 ips (19 / 38 cm/s).

If the **A80 Quartz-Control** should be used on a "High Speed " A80s, there is a jumper inside the Quartz Control box to set to „38 / 76“ cm/s position.

**Perfect control of the capstan speed** against influences:

- aging of components
- temperatur dependend changes of the speed determing components
- slip of the Studer 80 speed control circuit
- changes in the mains voltage

**Indicating synch state of the Motor speed** after power on and changing speed setting

**Pievox A80 Quartz-Control**

employs a special circuitry to not worsen the superior wow and flutter values of the Studer A80, as direct phase controlling circuits would do.

**The accessory- output** socket on the A80 Quartz-Control enables access to all lines of the A80 Capstan speed control socket for controlling variable speed - if the A80 Quartz-Control is in OFF-position.

**Please note:**

Tape speed differences as follow from slip on the pinch roller and minimal changes in speed from tape thickness 35 µm to 50 µm will not be covered by the A80 Quartz-Control, because the A80 Quartz-Control only controls the Capstan speed.

**Primary adjustment to the actual Capstan control PCB inside your A80**

Because there are minimal differences in every Studer A80 Speed control PCB in regard to the value of the control voltage for nominal speed, it is necessary to adjust the Pievox Quartz-Control to this actual value.

Also, if the Capstan speed control PCB is replaced or readjusted to nominal speed after repair, it is good practice to check, and if necessary, adjust to the phase adjustment in the **Pievox Quartz-Control** for best performance.

Check every month by pressing the phase button and confirm the blinking about 1/sec.

**Warning:**

**Do not push the phase button while recording valuable material!**

**Pushing the phase button opens the control loop.**

**The A80 speed is then only near the original speed.**

### How to adjust:

This adjustment matches the **Pievox Quartz-Control** to the control voltages of the actual Capstan control PCB inside your A80.

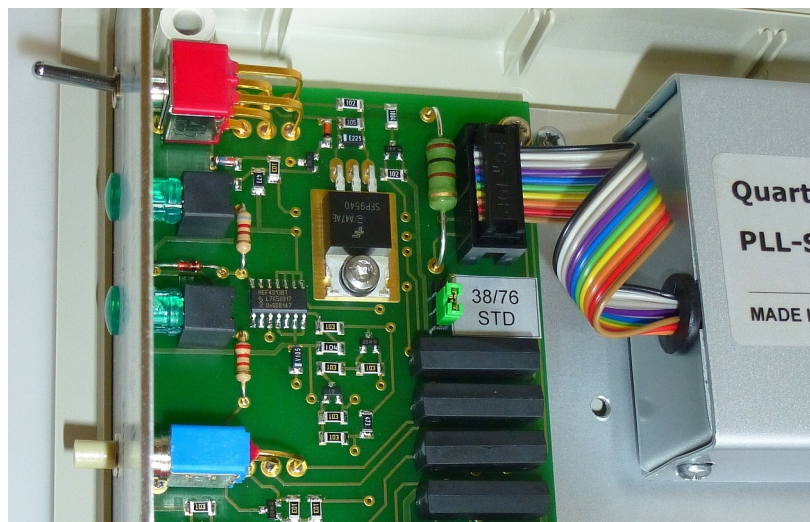
Applicate the tool in the bushing „adjust“ and rotate while using slight force to find contact to the slot of the 15 turn potentiometer.

Push the „phase“ -button with your left hand and adjust the potentiometer so that the „phase“-LED is blinking once per second.

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### Usage of the Pievox Quartz-Control on a High Speed A80 15 / 30 ips (38 / 76 cm/s)

The necessary change is to set the internal jumper from „Std“ to position „38 / 76“



### Connection of other A80 accessories

to the access-socket on the A80 Quartz-Control

Please note: the +24V line from the access socket is protected by a Polyfuse-  
The maximum current on the +24V line is limited to 100 mA.

All accessories for variable speed can stay connected to the **A80 Quartz-Control unit**, because if the Quartz-Control is powered „on“, it takes priority in the control of the Capstan speed and disconnects the control lines from the access socket.

**See circuitry below for external speed control two versions:**

- one for fine speed control +/- 3%
- and
- one for wide range (+/- 7 half-tones )

## Signals and pins on the access socket

access socket

Pin1

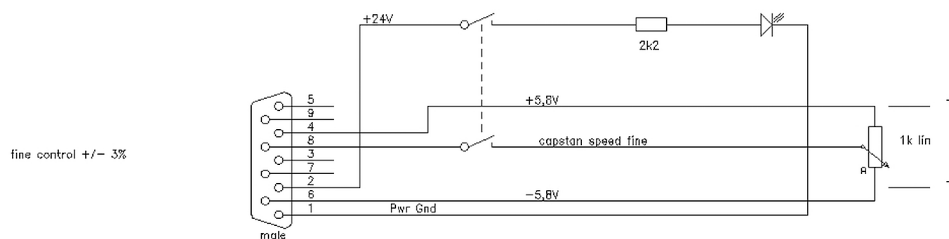


Pin 1	PWR GND
Pin 2	+24V PWR
Pin 3	Control voltage
Pin 4	+5,8V
Pin 5	+11V
Pin 6	-5,8V
Pin 7	800Hz (1600Hz bei A80 HS)
Pin 8	Capstan speed fine control
Pin 9	Control- GND

### Schematics:

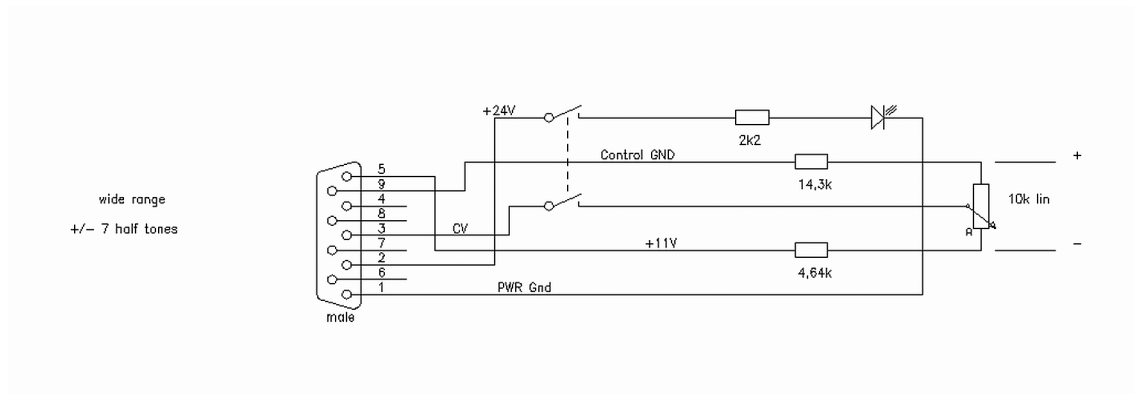
Fine speed control on access socket of the Quartz-Control unit

#### Fine speed control +/- 3 %



The 1k Ohm Potentiometer is a 10-Gang multiturn type !

#### Wide Range Control +/- 7 half-tones



The 10k Ohm potentiometer is a 10-Gang multiturn type !

## Schematic of the connecting cable from Quartz-Control to the Studer A80

If you need more cable length - a standard - D-SUB computer extension cable can be used. The length of this cable is not critical.

