

Instruction manual



BEVERAGES SWITCH

by

SP3KEY

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1. Introduction

During fall season of 2003, Jerzy SP3BQ ask me to build a switch for his receiving antennas system. This way, the base, containing 8 pool switch appears. Later on, when the job was done, he propose me to take a part in CQWW cw contest on 160m using his station.

Then, when I agree, I understand, that I'll need some kind of manipulator to activate antennas switch instead of ordinary rotary switch. Something, what allows me to switch automatically, switch without delay to any desire direction, and also makes possible to listening from two or more directions in the same time. Something which allows me change direction and after 20ms coming back to previous one.

So, a'im was to build switch which will work non-stop and make the work in the contest comfortable. Marek SQ3JPM, who likes to solve such problems, after becomes familiar with the problem – he said:

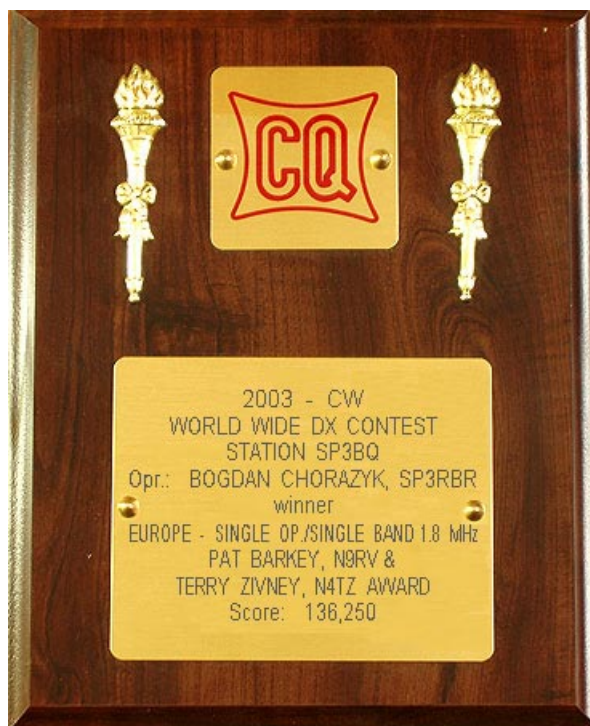
„processor and everything is simple”.

When I heard processor I'v give up immediately. But „young” preparing p.c. board - asking:

- 3 digits for display is enough?
- in automatic direction switching, first direction should be 90 degree and previous one 180?
- do you want possibility to programm your own azimuth on computer ?
- automatic mode for CT and WL will satisfy you?
- delay time of relay during change-over must be 20ms or less?
- whether number of pressed switches must be presented on display?
- whether you need to stop automatic direction finding via PC keyboard?

And what should I say? I'm just start to fileing a hole in chassis, few more holes in rear plate and finished.

Beverages switch was connected to CT via RS 232 and works nicely! Next year after the contest from Jerzy SP3BQ site was run a postman brings quite a nice plate.



The same switch for Beverages was using by Andy SP8NR at the same station, it was one year later, but no results available so far. And myself using the same switch on 80m from SP3GEM location, hopefully waiting for another one plate.

After 30 years of heavy work with rotary switches, new era comes. Some „luxus” is reward.

Anyway – „Young”
thank you very much for your help.

Bogdan SP3RBR
9.05.2005

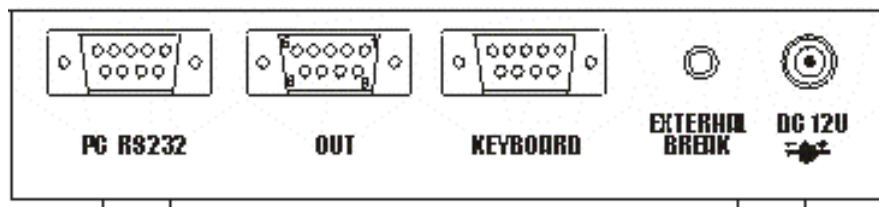
2. Front panel



ON/OFF – power supply switch.

WLED – shows direction of chosen antenna and number of connected antennas.

3. Panel tylni



3.1. Supply

Supply - socket 12V, + inner connector

3.2. External Break

Socket to stop automatic mode of work. Connecting to the „earth” (short circuit) stops automatic direction changing, and keeps last chosen direction.

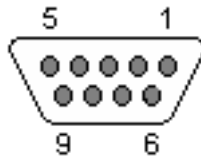
WARNING ! Do not connect any voltage to this socket. It can damage your switch

3.3. Keyboard

Keyboard – socket to plug keyboard (keyboard included)

3.4. Remote control output

Interconnecting signal from pin **IN** to chosen output **Out X**.

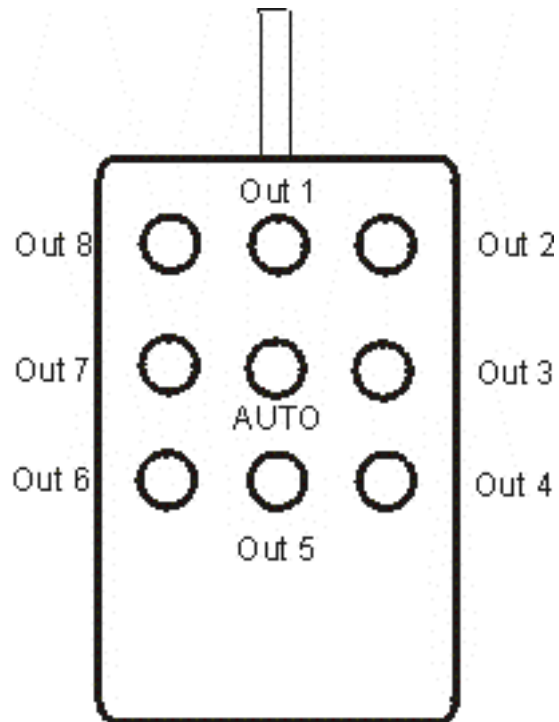


Pin	Description
1	Out 5
2	Out 6
3	Out 7
4	Out 8
5	In
6	Out 4
7	Out 3
8	Out 2
9	Out 1
housing	GND

3.5. Socket RS232

Socket to connect computer via interface RS232.

4. Keyboard



Keyboard — distributing voltage supply to particular outputs. Additional button AUTO — starting automatic switching mode.

5. Start

5.1. Connecting

Below - attached table showing directions which are pre-programmed (such programmed Beverages switches are distributed)

Output	Azimuth
Out 1	0
Out 2	45
Out 3	90
Out 4	135
Out 5	180
Out 6	225
Out 7	270
Out 8	315

Device should be connected according to the following rules: each next azimuth must have bigger value then previous one.

5.2. Choosing directions

Change of direction can be done by keyboard or computer programm. It works in few steps. After choosing new direction, new antenna is switched, controller is waiting 20ms and switching off previous antenna. Such design allows to avoid breaks during reception.

5.3. Few directions choosing

Beverages switch allows to connect in the same time more than one antenna. It can be done by simultaneously pressing several buttons in the same time. Numbers of presently chosen antennas are shown on display.

5.4. Automatic mode

Choosing central button of keyboard (**AUTO**), automatic mode of work is switched. In this mode, automatically, every 800ms output is switched, this mean that according to clockwise turn, every third output is connected.

Return to manual switching can be done by:

- choosing new direction from keyboard;
- pressing again button **AUTO**;
- using computer to direction change;
- using socket **EXTERNAL BREAK**.

6. PC connecting

6.1. PC interface

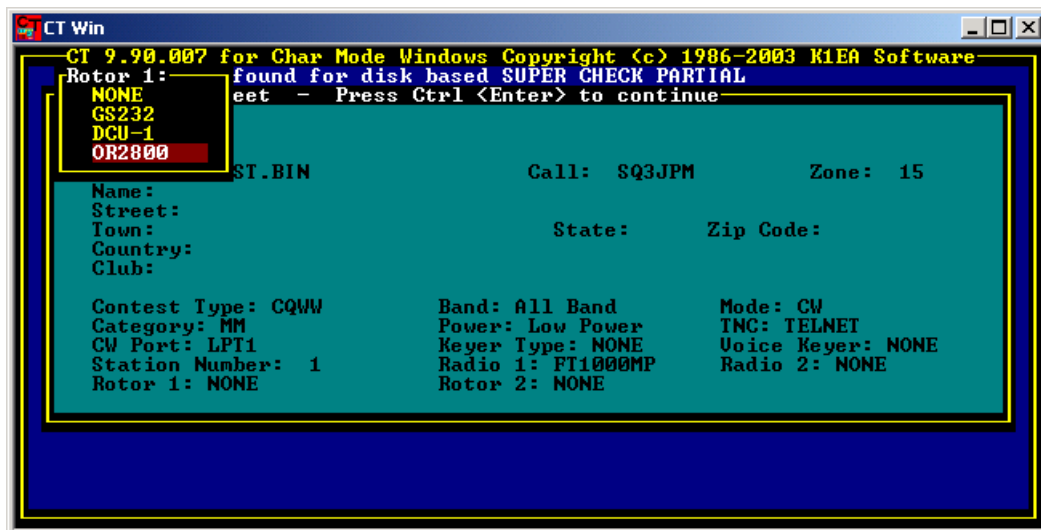
Beverages switch has build in a standard PC port RS232. This allows to connect a controller and computer using cable NULL MODEM.

6.2. Programmes

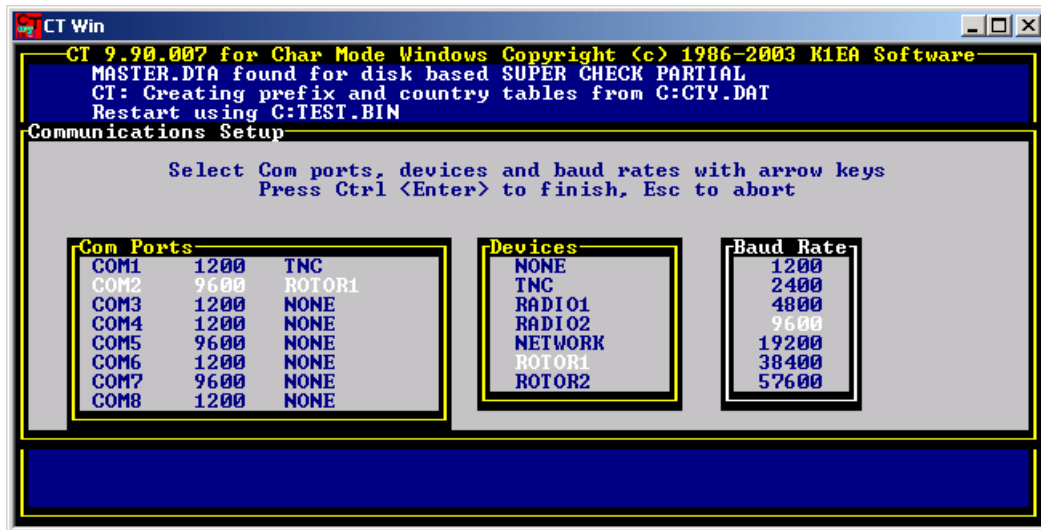
Using drivers of rotator OR 2800 family (M^2 company), controller can works with many different programmes existed on radio amateur market. Based on informations taken from programm, controller always connecting antenna with closer to corespondent azimuth.

6.2.1. Configuration of CT by K1EA

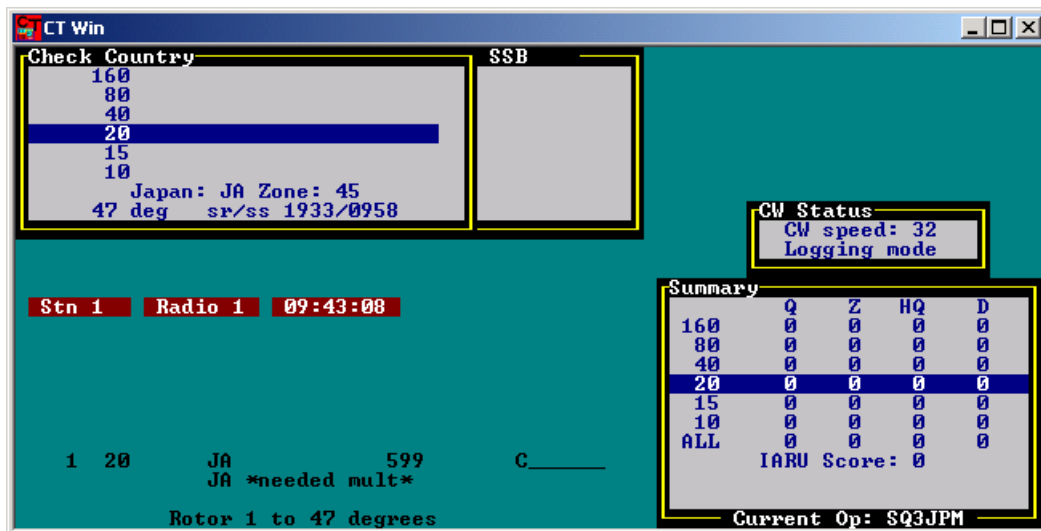
If CT programm is used with Beverages switch, then configure your programm to OR2800 rotator.



Rate of port COM must be 9600 bauds.



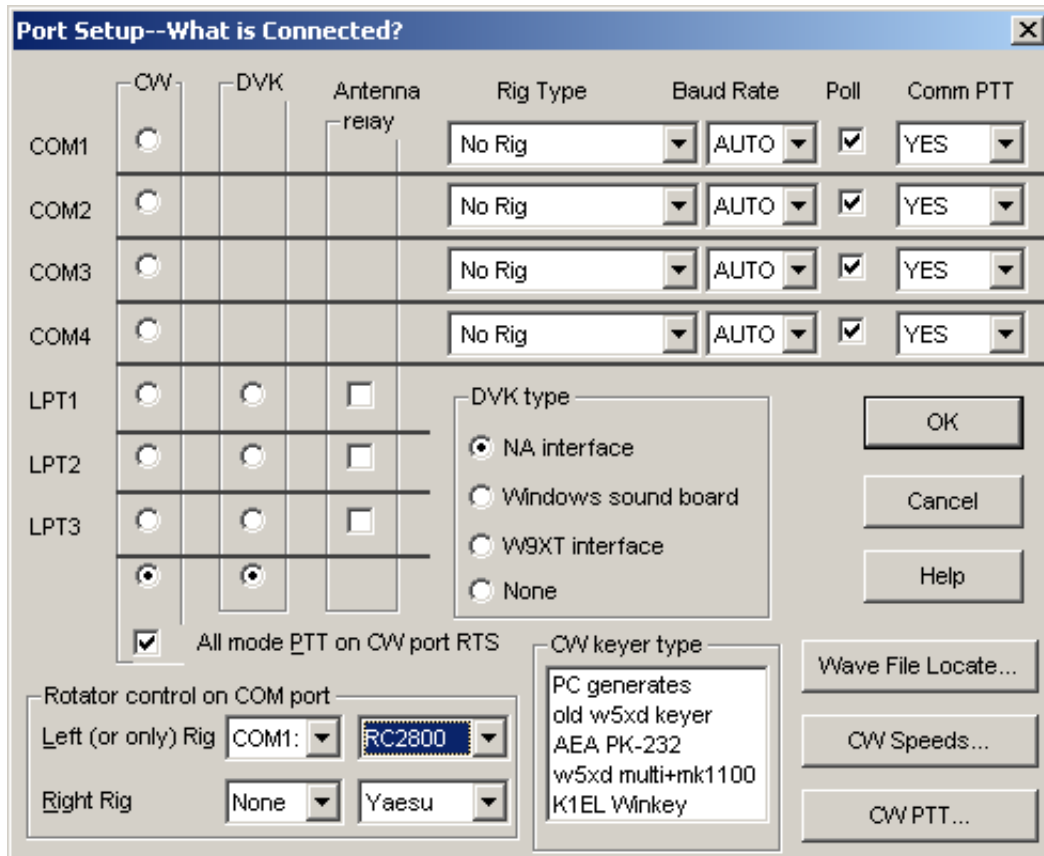
Changing antennas in CT programm is done by prefixes of corespondents or by writing in callsign field value of azimuth. Than by pressing buttons **CTRL + F10**, directions is changing and *Rotor 1 to xxx degrees*, message is seen below callsign field on screen.



If system MS-DOS is used along with CT programm, don't forget to activate COMTSR port.

6.2.2. WRITE LOG configuration

If **WL** programm is used along with Beverages switch, in menu **Setup/Ports**, section **Rotator control on COM** port, on adequate port COM, the controller **RC 2800** should be declare.

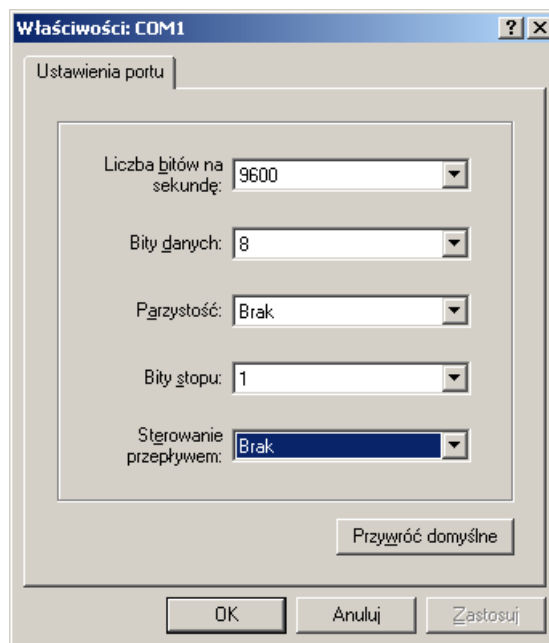


To change direction from *Radio* menu choose *Antenna to X Azimuth*. In this programm, a shortcut keyboard to run rotator is not state. It can be done by any combination of buttons in menu *Tools/Key* board.

7. Controller programming

You will get this controller with pre-set antennas directions. Anyway to be quite correct with your QTH antennas system, the table of azimuths must be re-programmed. It's more important if computer programm is used.

Programming is done by terminal emulation programm. In *Microsoft Windows* case, the *Hyper Terminal* programm can be useful. To start with programming mode - according to configuration circuit, proceed, taking under consideration COM port where controller is connected.



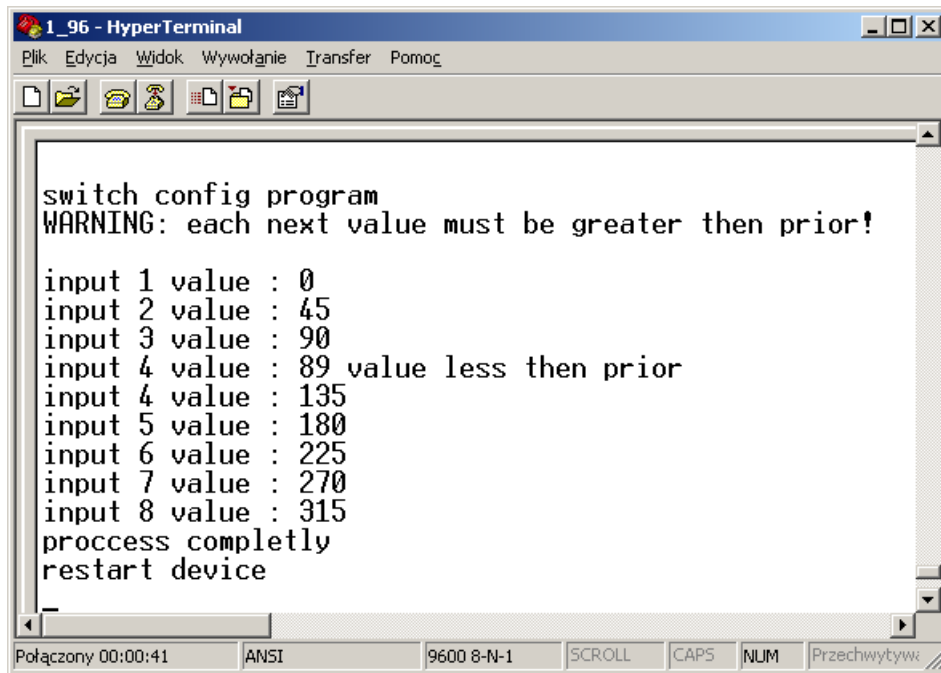
When programm is ready, the controller can be started in programm mode. In this case three upper buttons (OUT 8, 1 and 2) must be pressed in the same time and power supply switched-on. On display letter E appears – this means, that programming mode is on.

Window of Hyper Terminal shows:

switch config program

WARNING: each next value must be greater then prior!

input 1 value:



```
switch config program
WARNING: each next value must be greater then prior!

input 1 value : 0
input 2 value : 45
input 3 value : 90
input 4 value : 89 value less then prior
input 4 value : 135
input 5 value : 180
input 6 value : 225
input 7 value : 270
input 8 value : 315
proccess completly
restart device
```

Input values of each 8 directions. If mistake occurs, the WARNING appears and new values must be written.

If everything goes OK on display new information comes: *proccess completly restart device*

Your Beverages switch is ready to use in your QTH.