

Snagging list

Söemtron ETR 220 Circuits

The following list is for problems on the - **circuit and logic diagrams** - that need checking during the reverse engineering of the Söemtron ETR 220 Calculator. It is provided solely as an information source as to the current problems that need investigating.

This list changes continually without notice.

Board #1 - none

Board #2 - pending

1. Check net 2GR36-VE on gate K8 for driver ZAC0 appears not connected

Board #3 - pending

1. Backplane net $\overline{B1}$ pin B26 connects to this board but is not used.
2. Backplane net $\overline{F6}$ pin B22 connects to this board but is not used.
3. Backplane net MZ pin A28 connects to this board but is not used.
4. See note #6.1 – on GDR logic pin A22 net SYM connects to PL6/A22 which is net AUSGN39.
5. See note #4.2 – on GDR logic K28 o/p net K(LES, \overline{VER} ,V) pin 15, also on board 4 as K(LES, \overline{VER} ,V,UBER) pin14.

Board #4 - finished

1. Gate K62 on GDR logic shows 10k to pin 48 ($\overline{DGDRV0}$), board & circuit has GR60.
2. See note #3.6 - on GDR logic K28 o/p net K(LES, \overline{VER} ,V,UBER) pin14, also on board 3 as K28 net K(LES, \overline{VER} ,V) pin 15.
3. Pin 7 shown twice on GDR logic diagram as o/p of K65 and VLS I/p. VLS is pin 7, pin 1 is K65 o/p.
4. See note #7.4 - K65 as net K(F1,B4F,R,LES,S16) is also on sheet 7 of GDR logics (UBER flip-flop). This one called K65.

Board #5 - finished

1. Backplane Net B33 pin B27 connects to this board but is not used.

Board #6 - pending

1. See note #3.5 - pin A22 net AUSGN39 connects to PL3/A22 which is net SYM on the GDR logic diagrams.

Board #7 - finished

1. F/f R, gate K141, net S16 I/p not from pin A2. S16 is pin A29, confirmed by K133 S16 I/p. Pin A2 is net K(F1 $\overline{B4F}$).
2. PL7/30, net \overline{X} appears not to be used on this board ?
3. Master Clear gate net KBD(CL1) Lõ has no gate #. Gate is split between boards 7, 8 & 9. Also Lõ from power supply pin 16.
4. See note #4.4 - K65 as net K(F1, $\overline{B4F}$,S16,R,LES,) is also on sheet 4 of GDR logics (UBER flip-flop). This one called K65A.

Board #8 - finished

1. Backplane net $\overline{S1}$ pin A2 connects to this board but is not used.
2. K152 o/p pin B17 (48) is net K(\overline{R} , \overline{VOR} ,MZ) connects to board 3 pin 48 net K(\overline{R} , \overline{VOR} , $\overline{F1}$, \overline{VER} ,S16,MZ) renamed as K(\overline{R} , $\overline{S16}$)
3. 8W78 is net KYCLER pin B25 (56), on GDR logic it is net CO connecting to pin B26 (57) on board 12.
4. K160 o/p pin B26 (57) is net $\overline{A8}$ - \overline{RU} from board 9 pin 57 and board 10 pin 57, but is the following nets on the original German logic diagrams –

Board 8 – net K($\overline{A8}$, \overline{RU} , \overline{R} ,S16,VLS, \overline{VOR}) – gate K160.

Board 9 – net K($\overline{A8}$, \overline{RU} , \overline{R} ,S16,VLS, \overline{VOR} ,AUSG) – gate K161.

Board 10 – net K($\overline{A8}$, \overline{RU} , \overline{R} , VLS, \overline{VOR} , AUSG) – gate K160.

5. Pin A10 net $\overline{KEYPRESS}$ not connected on board.

6. Backplane net G1 pin B21 connects to this board but is not used.
7. Backplane net B33 pin B28 connects to this board but is not used.
8. Master Clear gate net KBD(CL1) Lõ has no gate #. Gate is split between boards 7, 8 & 9. Also Lõ from power supply pin 16.
9. See note #102 – K155 o/p as net $K(\overline{F1F}, MUL, \overline{F}, S1)$ is also K155 on board 10 as net $K(MUL, \overline{Z}, S1, F1F)$.

Board #9 - finished

1. See note #8.4. - K161 o/p pin B26 (57) is net $\overline{A8} - \overline{RU}$ from board 8 pin 57 and board 10 pin 57, but is net $K(\overline{A8}, \overline{RU}, R, S16, VLS, \overline{VOR}, AUSG)$ on the original German logic diagrams.
2. K162 pull down W113 ? not connected to net M pin A9.
3. Net NUMKEYS was net Z/0 is connected to pin B17 (48) but logic diagram is pin B9 (40).

Board #10 - pending

1. See note #8.4. - K160 o/p pin B26 (57) is net $\overline{A8} - \overline{RU}$ from board 8 pin 57 and board 10 pin 57, but is net $K(A8, RU, R, VLS, \overline{VOR}, AUSG)$ on the original German logic diagrams.
2. See note #8.9 - K155 o/p is net $K(MUL, \overline{Z}, S1, F1F)$, is also K155 on board 8 as net $K(\overline{F1F}, MUL, \overline{F}, S1)$.

Board #11 - none

Board #12 - none

Display - none

Keyboard - none

Backplane - pending

1. Net A44 SK6/A22 to SK3/A22 is net SYM on board 3 and AUSGN39 on board 6.
4. PL8/A29 connects to PL3/A28 as net MZ but not used on board 3.
5. SK3/A6 connects to SK6/A6 as net A41 but not used on board 3 or board 6.

Power supply - none

Translated Russian manual

- P3 Paragraph 4 – “striking a balance” ? - current
- P100 Paragraph 4, logic 1 signal disables K74 and enables K79 ?
- P101 Paragraph 2, logic 1 signal disables K74/K84 and enables K79 ?
- P110 Paragraph 2 – “disconnecting - stopping” the Z counter.
- P114 Paragraph 5 refers to gate K51 which is not found on the logic or circuit diagrams. The paragraph seems to be correct from the Russian manual original.
Paragraph 10 refers to “following error” of the Z counter.
- P142 Paragraph 6 – “sets and blocks in running order flip-flop UV” – resets enables ?
Also - “alternately be in the conducting state” ?
- P148 Paragraph 4 – “notebook flip-flops”
- P159 Para 1 – “From output F3 of inverter N65 a logic 1 signal enters the controlling input of the differentiating circuit and disables the operation of gate K132” – how ?
- P172 Paragraph 4 - [law is Chen] ?
- P183 Paragraph 5– “reverse unmarried” cycle of the Z counter.
- P186 Paragraph 3 – “sealed” ?