

Abbildung b.1: Panel layout

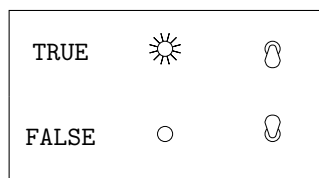


Tabelle b.1: Logical states corresponding to input and output elements in default configuration

xx05x	xx09x	xx12x	xx17x	xx18x
xx27x	xx32x	xx33x	xx36x	xx38x
xx39x	xx42x	xx45x	xx49x	xx51x
xx53x	xx60x	xx61x	xx62x	xx64x
xx65x	xx68x	xx71x	xx74x	xx75x
xx77x	xx79x	xx82x	xx85x	xx97x

Tabelle b.2: List of serial numbers with inverted switch directions (down=FALSE)

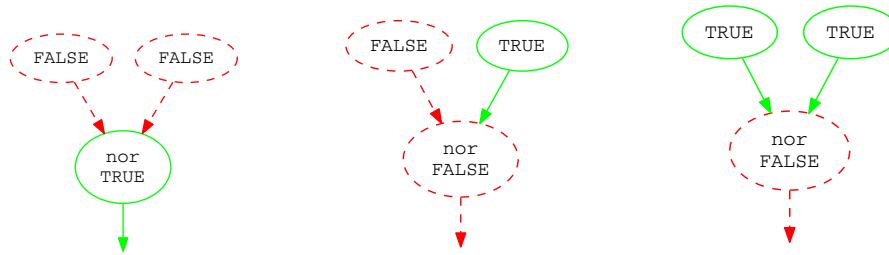


Abbildung b.2: Example for all possible nor combinations

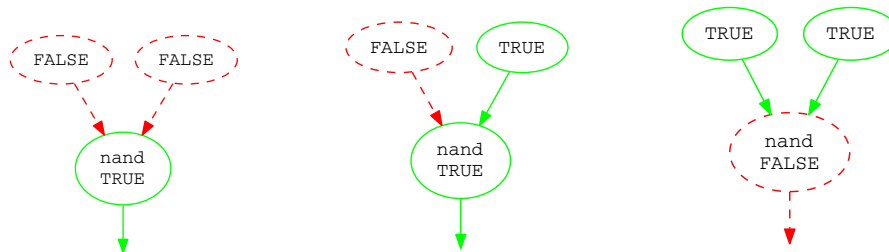


Abbildung b.3: Example for all possible nand combinations

How to defuse

The Gates-module is an accumulation of multiple logical gates connected to other gates and named signal lines. Each gate has two inputs (binary gate), which can have values of TRUE or FALSE. Each gate drives all outgoing signal lines to the output value according to the inputs and table b.3. Some named signal lines are connected to LEDs, enabling the user to see the current state of the line. To defuse this module, set all switches so that they have the value of the corresponding signal line, and press RUN down.

This module is also available with inverted LED values (choose xxxxK, xxxxL, xxxxN, xxxxT or xxxxU) and inverted switch directions (table b.2).

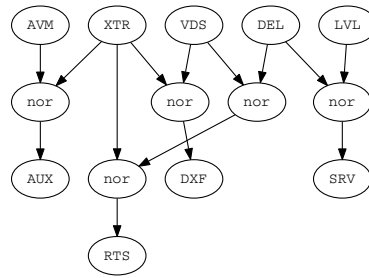


Abbildung b.4: Internal wiring for series 10xxx-19xxx

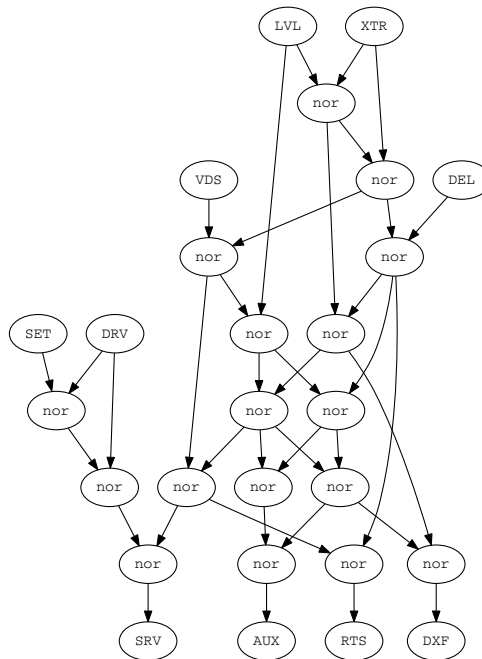


Abbildung b.5: Internal wiring for series 20xxx-39xxx

IN 1	IN 2	nor	nand
FALSE	FALSE	TRUE	TRUE
FALSE	TRUE	FALSE	TRUE
TRUE	FALSE	FALSE	TRUE
TRUE	TRUE	FALSE	FALSE

Tabelle b.3: Truth table for NAND and NOR gates for different input values

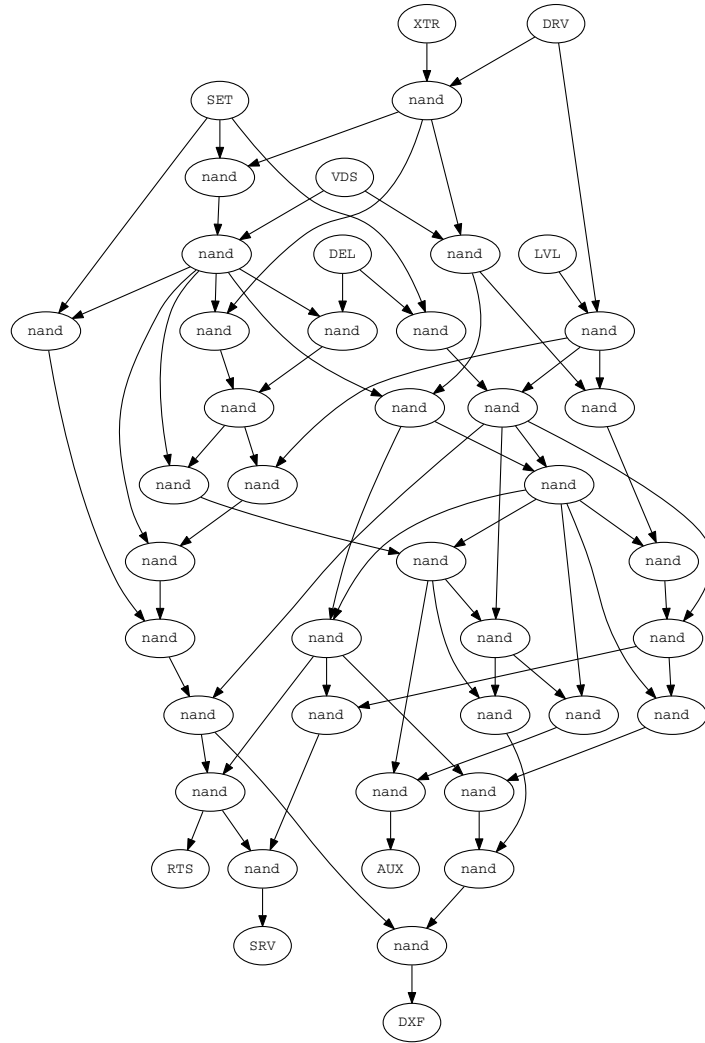


Abbildung b.6: Internal wiring for series 40xxx-59xxx

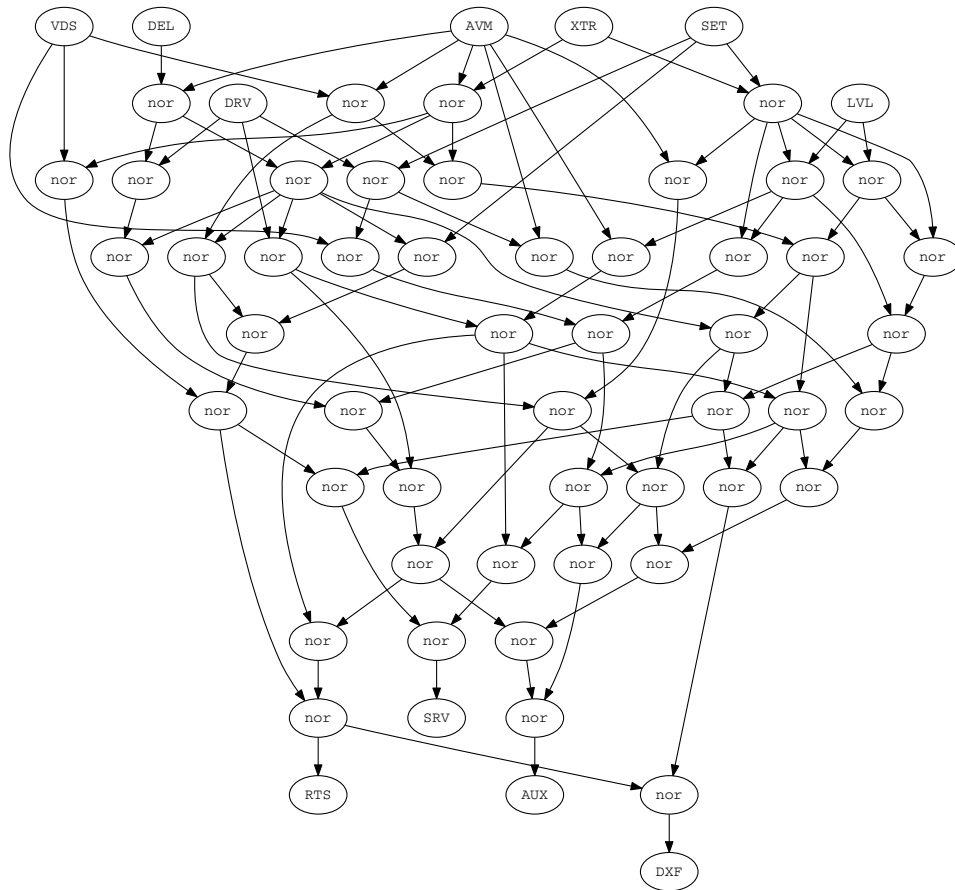


Abbildung b.7: Internal wiring for series 60xxx and later

Series	rule
10xxx-19xxx	13
20xxx-39xxx	24
40xxx-59xxx	31

Tabelle b.4: Most important Rules

How to defuse

This module can be defused following some simple rules listed below. Be careful, not all rules are equally important and you will have to ignore some! Start with the one rule that is not referenced by others (table b.4). Press the RUN button down when all necessary rules are followed.

This module is also available with inverted LED values (choose xxxxK, xxxxL, xxxxN, xxxxT or xxxxU) and inverted switch directions (table b.2).

Series 10xxx-19xxx

Rule 1 : Set AUX to TRUE

Rule 2 : Obey the rules 1, 27, 34 and 23

Rule 3 : Set AUX to FALSE

Rule 4 : If AVM is TRUE, obey rule 33, else obey rule 19

Rule 5 : If DEL is TRUE, obey rule 4, else obey rule 24

Rule 6 : If SET is TRUE, obey rule 33, else obey rule 26

Rule 7 : If AVM is TRUE, obey rule 33, else obey rule 22

Rule 8 : If AVM is TRUE, obey rule 6, else obey rule 30

Rule 9 : Obey the rules 1, 14, 10 and 23

Rule 10 : Set DXF to FALSE

Rule 11 : Obey the rules 1, 27, 34 and 18

Rule 12 : If SET is TRUE, obey rule 31, else obey rule 17

Rule 13 : If XTR is TRUE, obey rule 28, else obey rule 5

Rule 14 : Set SRV to TRUE

Rule 15 : If DRV is TRUE, obey rule 20, else obey rule 35

Rule 16 : Obey the rules 3, 14, 34 and 18

Rule 17 : If DRV is TRUE, obey rule 9, else obey rule 21

Rule 18 : Set RTS to FALSE

Rule 19 : If DRV is TRUE, obey rule 25, else obey rule 2
Rule 20 : Obey the rules 3, 27, 10 and 23
Rule 21 : Obey the rules 1, 14, 34 and 18
Rule 22 : If DRV is TRUE, obey rule 20, else obey rule 32
Rule 23 : Set RTS to TRUE
Rule 24 : If AVM is TRUE, obey rule 6, else obey rule 12
Rule 25 : Obey the rules 1, 27, 10 and 23
Rule 26 : Obey the rules 3, 14, 10 and 18
Rule 27 : Set SRV to FALSE
Rule 28 : If DEL is TRUE, obey rule 7, else obey rule 8
Rule 29 : If DRV is TRUE, obey rule 36, else obey rule 16
Rule 30 : If SET is TRUE, obey rule 15, else obey rule 29
Rule 31 : If DRV is TRUE, obey rule 25, else obey rule 11
Rule 32 : Obey the rules 3, 27, 34 and 23
Rule 33 : Obey the rules 3, 27, 10 and 18
Rule 34 : Set DXF to TRUE
Rule 35 : Obey the rules 3, 27, 34 and 18
Rule 36 : Obey the rules 3, 14, 10 and 23

Series 20xxx-39xxx

Rule 1 : If DRV is TRUE, obey rule 12, else obey rule 17
Rule 2 : If DRV is TRUE, obey rule 27, else obey rule 20
Rule 3 : If AVM is TRUE, obey rule 36, else obey rule 6
Rule 4 : If SET is TRUE, obey rule 2, else obey rule 31
Rule 5 : Obey the rules 35, 21, 22 and 37
Rule 6 : If SET is TRUE, obey rule 27, else obey rule 18
Rule 7 : If SET is TRUE, obey rule 17, else obey rule 1
Rule 8 : If SET is TRUE, obey rule 27, else obey rule 1
Rule 9 : If DEL is TRUE, obey rule 3, else obey rule 40
Rule 10 : If AVM is TRUE, obey rule 7, else obey rule 8

Rule 11 : If SET is TRUE, obey rule 27, else obey rule 38

Rule 12 : Obey the rules 34, 21, 26 and 37

Rule 13 : If LVL is TRUE, obey rule 9, else obey rule 25

Rule 14 : Obey the rules 35, 21, 22 and 16

Rule 15 : Set SRV to TRUE

Rule 16 : Set RTS to TRUE

Rule 17 : Obey the rules 35, 15, 22 and 37

Rule 18 : If DRV is TRUE, obey rule 12, else obey rule 14

Rule 19 : Obey the rules 35, 21, 26 and 16

Rule 20 : Obey the rules 35, 15, 26 and 16

Rule 21 : Set SRV to FALSE

Rule 22 : Set DXF to TRUE

Rule 23 : If AVM is TRUE, obey rule 4, else obey rule 11

Rule 24 : If VDS is TRUE, obey rule 25, else obey rule 13

Rule 25 : If DEL is TRUE, obey rule 23, else obey rule 10

Rule 26 : Set DXF to FALSE

Rule 27 : Obey the rules 35, 21, 26 and 37

Rule 28 : If SET is TRUE, obey rule 5, else obey rule 33

Rule 29 : If SET is TRUE, obey rule 27, else obey rule 33

Rule 30 : Obey the rules 35, 15, 22 and 16

Rule 31 : If DRV is TRUE, obey rule 12, else obey rule 20

Rule 32 : If DRV is TRUE, obey rule 27, else obey rule 19

Rule 33 : If DRV is TRUE, obey rule 12, else obey rule 5

Rule 34 : Set AUX to FALSE

Rule 35 : Set AUX to TRUE

Rule 36 : If SET is TRUE, obey rule 32, else obey rule 39

Rule 37 : Set RTS to FALSE

Rule 38 : If DRV is TRUE, obey rule 12, else obey rule 30

Rule 39 : If DRV is TRUE, obey rule 12, else obey rule 19

Rule 40 : If AVM is TRUE, obey rule 28, else obey rule 29

Series 40xxx-59xxx

Rule 17 : Obey the rules 9, 25, 20 and 4

Rule 18 : Obey the rules 1, 25, 20 and 4

Rule 5 : If AVM is TRUE, obey rule 33, else obey rule 24

Rule 31 : If VDS is TRUE, obey rule 37, else obey rule 21

Rule 30 : Set RTS to TRUE

Rule 27 : Set DXF to TRUE

Rule 10 : If DEL is TRUE, obey rule 24, else obey rule 5

Rule 15 : Obey the rules 9, 34, 27 and 30

Rule 36 : If DRV is TRUE, obey rule 17, else obey rule 8

Rule 25 : Set SRV to TRUE

Rule 22 : Obey the rules 1, 34, 27 and 30

Rule 20 : Set DXF to FALSE

Rule 3 : If SET is TRUE, obey rule 26, else obey rule 15

Rule 13 : If DRV is TRUE, obey rule 11, else obey rule 18

Rule 16 : If SET is TRUE, obey rule 36, else obey rule 14

Rule 2 : If DEL is TRUE, obey rule 28, else obey rule 7

Rule 14 : If DRV is TRUE, obey rule 17, else obey rule 15

Rule 35 : If SET is TRUE, obey rule 26, else obey rule 13

Rule 12 : Obey the rules 1, 25, 27 and 30

Rule 26 : If DRV is TRUE, obey rule 15, else obey rule 8

Rule 4 : Set RTS to FALSE

Rule 9 : Set AUX to FALSE

Rule 24 : If SET is TRUE, obey rule 36, else obey rule 29

Rule 1 : Set AUX to TRUE

Rule 33 : If SET is TRUE, obey rule 19, else obey rule 23

Rule 7 : If AVM is TRUE, obey rule 33, else obey rule 35

Rule 28 : If AVM is TRUE, obey rule 16, else obey rule 3

Rule 11 : Obey the rules 1, 34, 20 and 30

Rule 34 : Set SRV to FALSE

Rule 19 : If DRV is TRUE, obey rule 17, else obey rule 12

Rule 37 : If LVL is TRUE, obey rule 2, else obey rule 10

Rule 8 : Obey the rules 9, 25, 27 and 30

Rule 21 : If LVL is TRUE, obey rule 6, else obey rule 29

Rule 6 : If DEL is TRUE, obey rule 15, else obey rule 13

Rule 23 : If DRV is TRUE, obey rule 22, else obey rule 32

Rule 32 : Obey the rules 1, 25, 27 and 4

Rule 29 : If DRV is TRUE, obey rule 22, else obey rule 18

Series 60xxx and later

Rule 32 : If DRV is TRUE, obey rule 52, else obey rule 7

Rule 5 : If DEL is TRUE, obey rule 48, else obey rule 1

Rule 47 : If LVL is TRUE, obey rule 55, else obey rule 20

Rule 51 : Set SRV to FALSE

Rule 39 : Obey the rules 31, 51, 53 and 44

Rule 4 : Set AUX to FALSE

Rule 2 : If AVM is TRUE, obey rule 6, else obey rule 7

Rule 27 : If SET is TRUE, obey rule 3, else obey rule 50

Rule 49 : Obey the rules 4, 51, 14 and 44

Rule 28 : If SET is TRUE, obey rule 36, else obey rule 12

Rule 53 : Set DXF to FALSE

Rule 44 : Set RTS to FALSE

Rule 26 : If AVM is TRUE, obey rule 24, else obey rule 27

Rule 12 : If DRV is TRUE, obey rule 8, else obey rule 36

Rule 29 : If LVL is TRUE, obey rule 35, else obey rule 16

Rule 15 : If VDS is TRUE, obey rule 47, else obey rule 29

Rule 34 : Obey the rules 31, 51, 53 and 21

Rule 8 : Obey the rules 4, 45, 53 and 21

Rule 50 : If DRV is TRUE, obey rule 49, else obey rule 7

Rule 11 : If AVM is TRUE, obey rule 38, else obey rule 54

Rule 7 : Obey the rules 4, 51, 53 and 21

Rule 54 : If DRV is TRUE, obey rule 39, else obey rule 37

Rule 46 : If AVM is TRUE, obey rule 38, else obey rule 27

Rule 41 : Obey the rules 31, 45, 14 and 44

Rule 21 : Set RTS to TRUE

Rule 14 : Set DXF to TRUE

Rule 24 : If SET is TRUE, obey rule 10, else obey rule 12

Rule 13 : If DEL is TRUE, obey rule 22, else obey rule 43

Rule 48 : If AVM is TRUE, obey rule 24, else obey rule 40

Rule 55 : If XTR is TRUE, obey rule 28, else obey rule 13

Rule 38 : If SET is TRUE, obey rule 19, else obey rule 50

Rule 40 : If DRV is TRUE, obey rule 37, else obey rule 52

Rule 19 : If DRV is TRUE, obey rule 49, else obey rule 36

Rule 52 : Obey the rules 4, 45, 53 and 44

Rule 31 : Set AUX to TRUE

Rule 16 : If XTR is TRUE, obey rule 2, else obey rule 56

Rule 9 : Obey the rules 4, 45, 14 and 44

Rule 18 : If AVM is TRUE, obey rule 28, else obey rule 7

Rule 35 : If XTR is TRUE, obey rule 28, else obey rule 42

Rule 3 : If DRV is TRUE, obey rule 41, else obey rule 36

Rule 22 : If AVM is TRUE, obey rule 24, else obey rule 23

Rule 6 : If SET is TRUE, obey rule 36, else obey rule 8

Rule 30 : If DRV is TRUE, obey rule 49, else obey rule 9

Rule 1 : If AVM is TRUE, obey rule 25, else obey rule 40

Rule 45 : Set SRV to TRUE

Rule 36 : Obey the rules 31, 45, 53 and 21

Rule 10 : If DRV is TRUE, obey rule 34, else obey rule 36

Rule 17 : If SET is TRUE, obey rule 10, else obey rule 8

Rule 43 : If AVM is TRUE, obey rule 25, else obey rule 23

Rule 25 : If SET is TRUE, obey rule 30, else obey rule 32

Rule 23 : If SET is TRUE, obey rule 9, else obey rule 32

Rule 42 : If DEL is TRUE, obey rule 26, else obey rule 46

Rule 20 : If XTR is TRUE, obey rule 18, else obey rule 5

Rule 33 : If AVM is TRUE, obey rule 17, else obey rule 54

Rule 56 : If DEL is TRUE, obey rule 33, else obey rule 11

Rule 37 : Obey the rules 4, 51, 53 and 44