

8 Function diagrams

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Freely assignable function blocks

(Technology software in the basic converter, S00 option)

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NOTE

Freely assignable function blocks are enabled in parameter U977.
For enabling instructions, please refer to Section 11, Parameter List, description of parameters U977 and n978.

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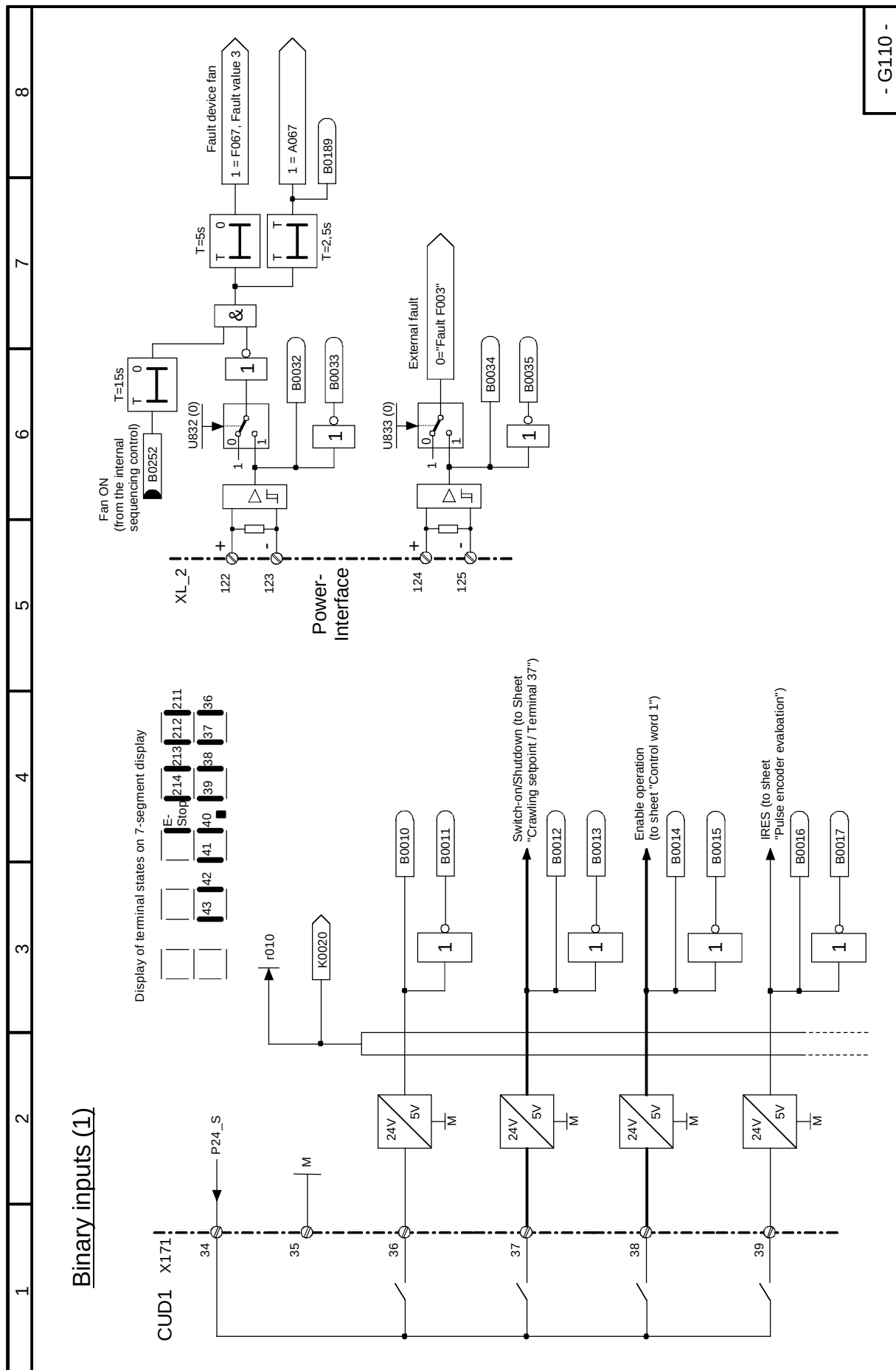


The diagram illustrates the control system's response to a disturbance. It shows two horizontal lines representing the setpoint and the r-f generator output. The top line is labeled "Additional setpoint before r-f generator" and has four upward arrows labeled "a", "b", "c", and "d". The bottom line is labeled "before r-f generator" and has four upward arrows labeled "a", "b", "c", and "d". A vertical line connects the two lines, with the word "equals" written next to it, indicating that the setpoint is equal to the generator output.

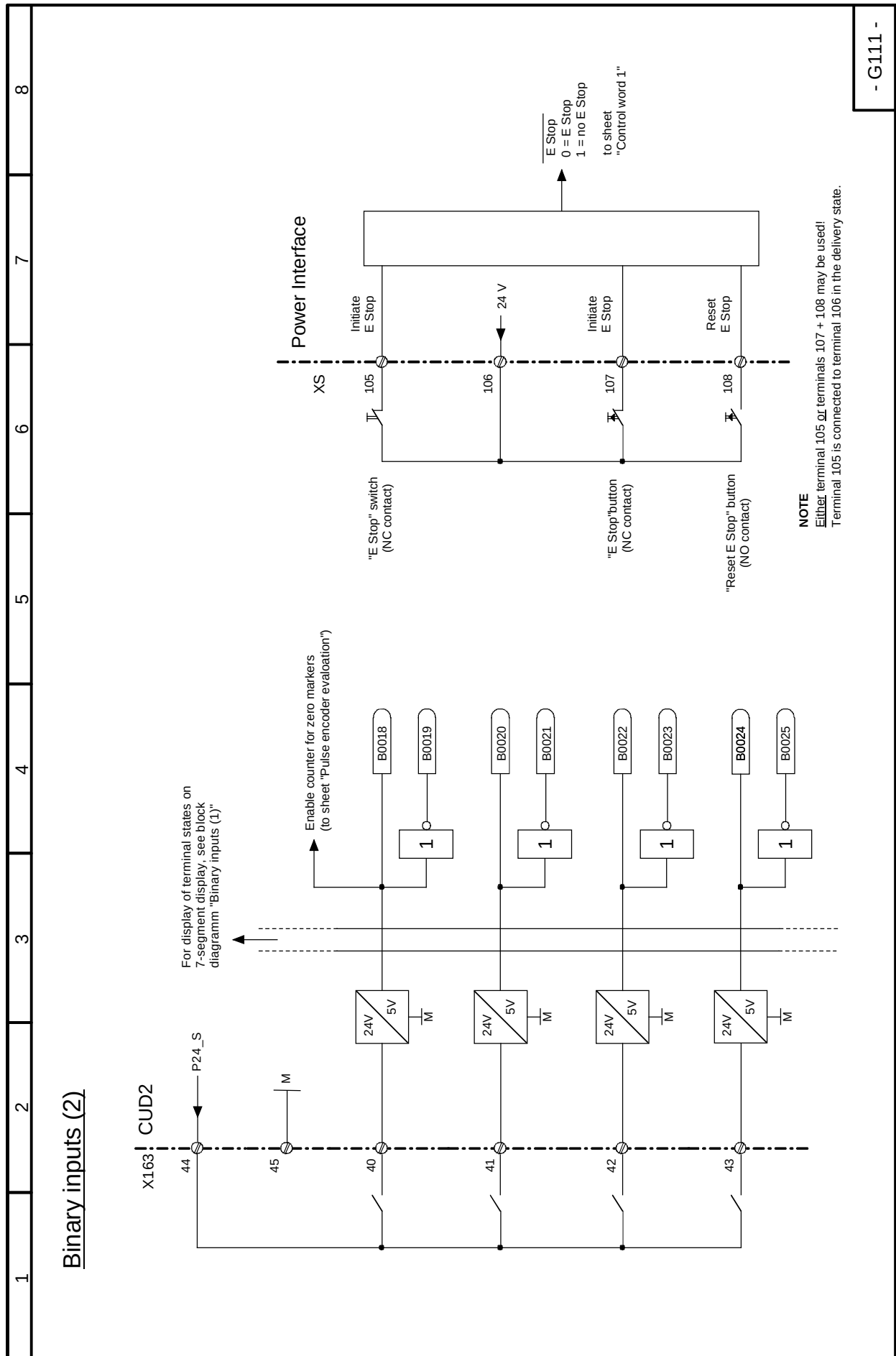
- a ... Analog input
- b ... Serial interface
- c ... Basic converter function
- d ... Supplementary board

Sheet G110 Binary inputs terminals 36 to 39

Binary inputs terminals 122/123 and 124/125

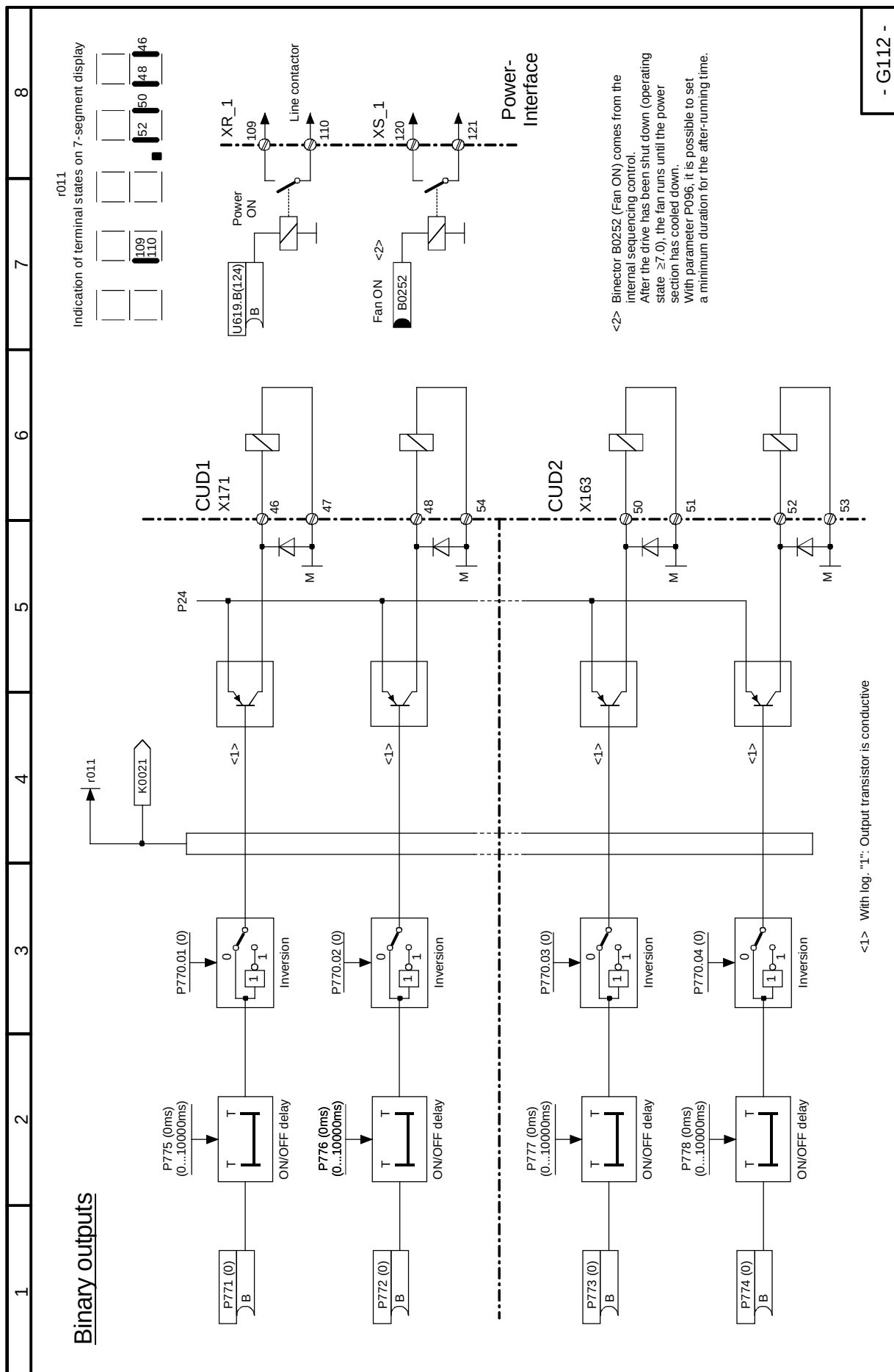


Sheet G111 Binary inputs terminals 40 to 43, E-Stop

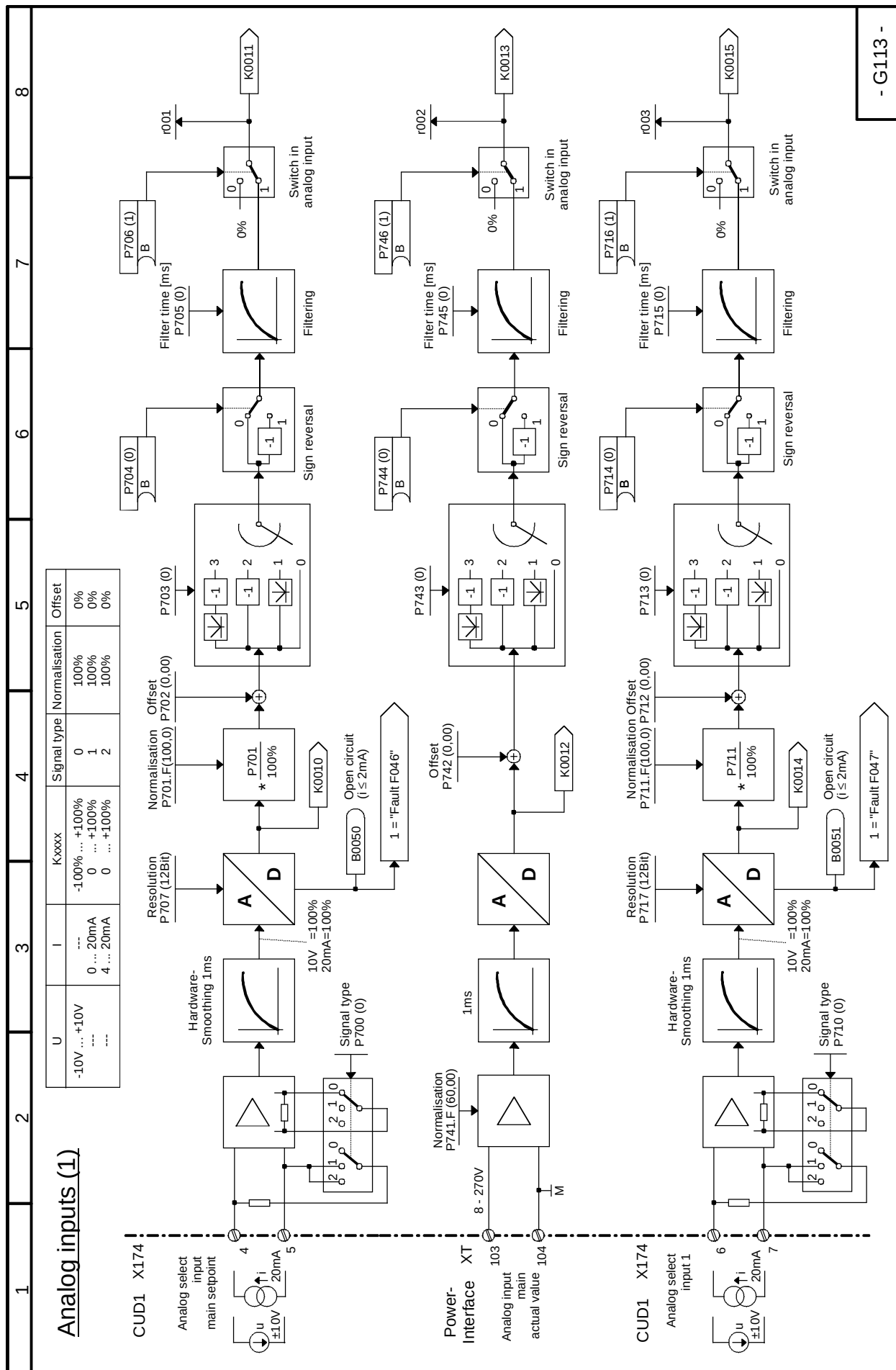


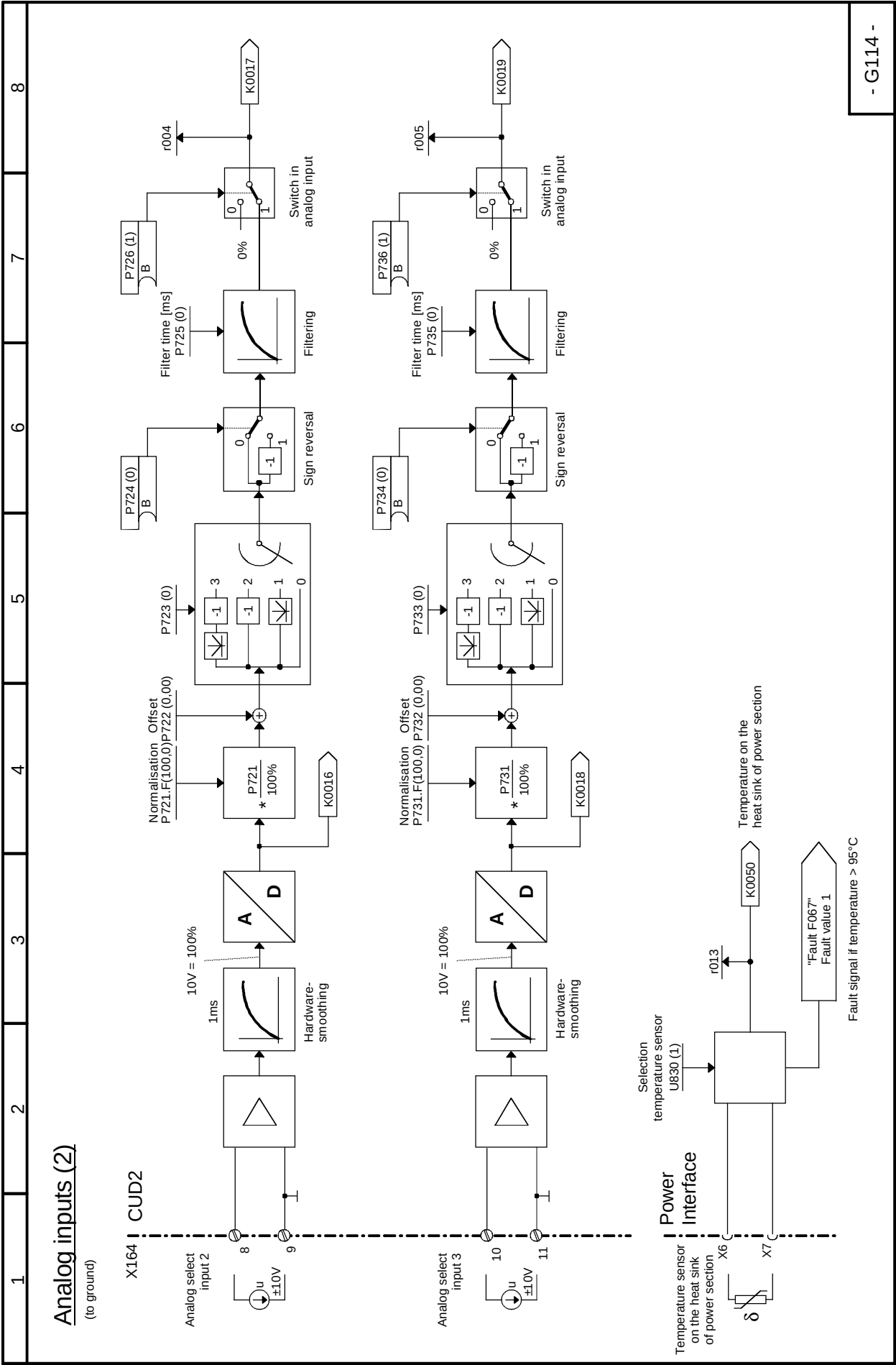
Sheet G112 Binary outputs terminals 46/47, 48/54, 50/51 and 52/53

Relay outputs line contactor and Fan ON



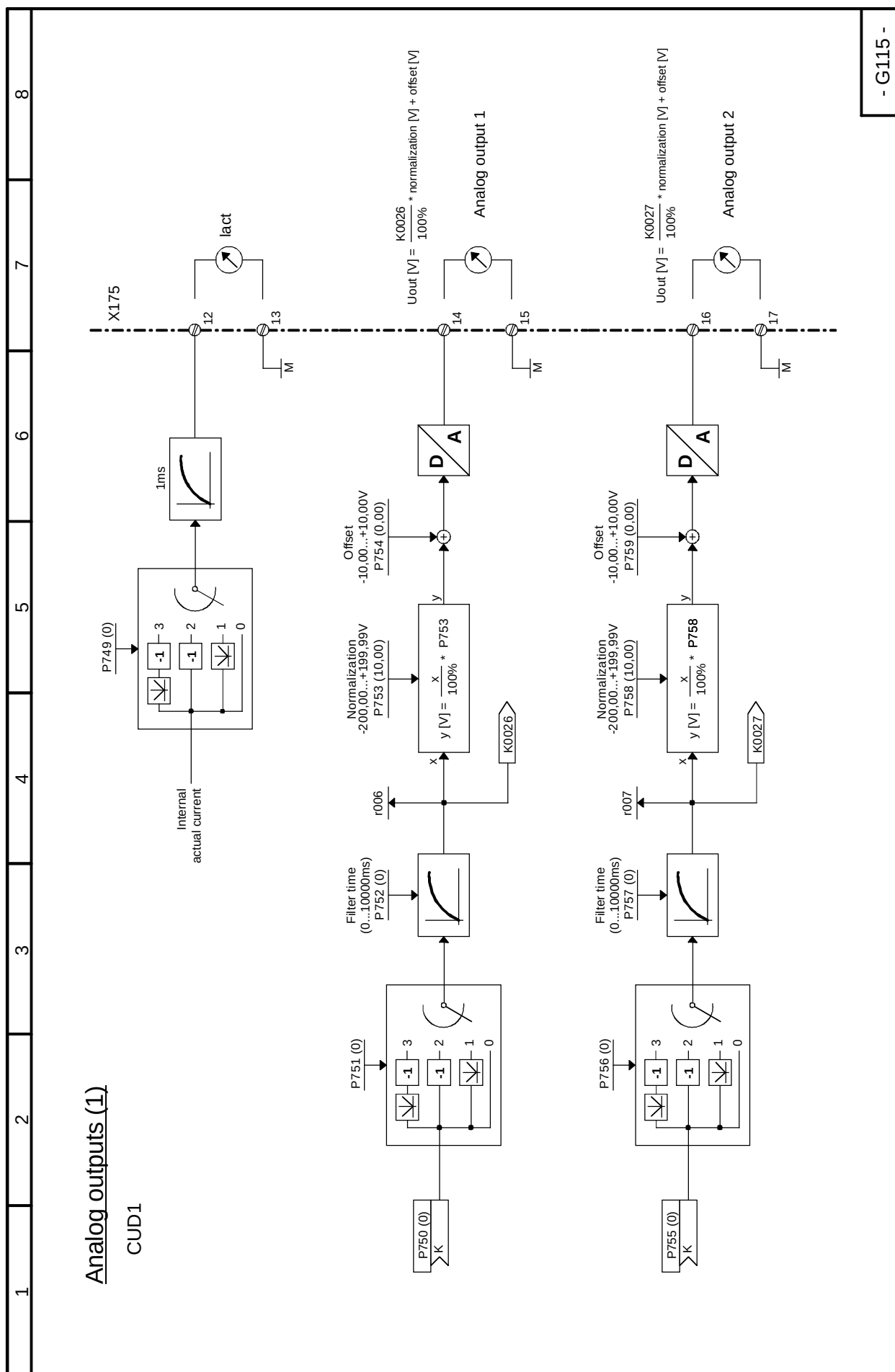
Sheet G113 Analog inputs terminals 4/5, 6/7, and 103/104



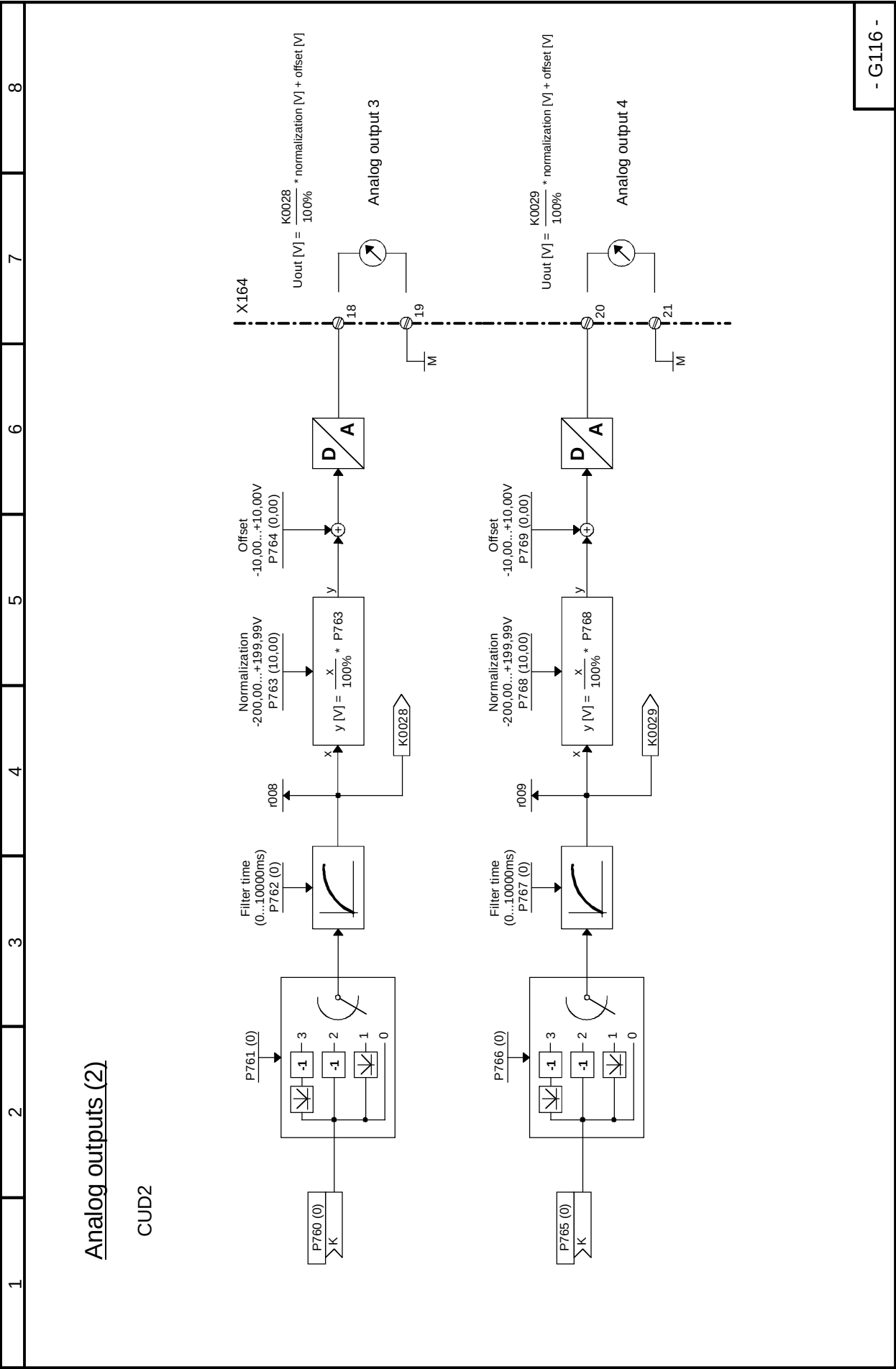


- G114 -

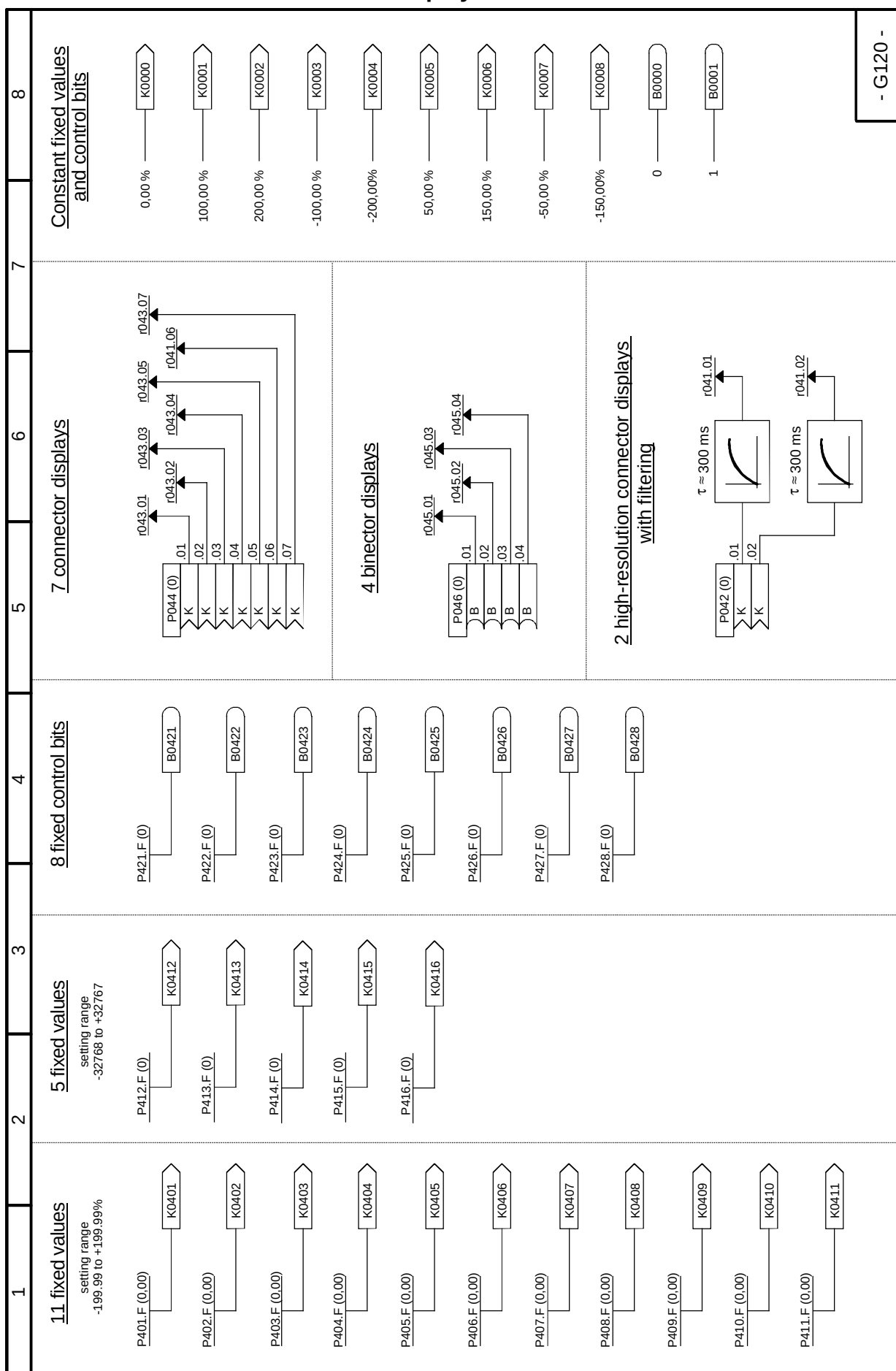
Sheet G115 Analog outputs terminals 12/13, 14/15, and 16/17



Sheet G116 Analog outputs terminals 18/19 and 20/21



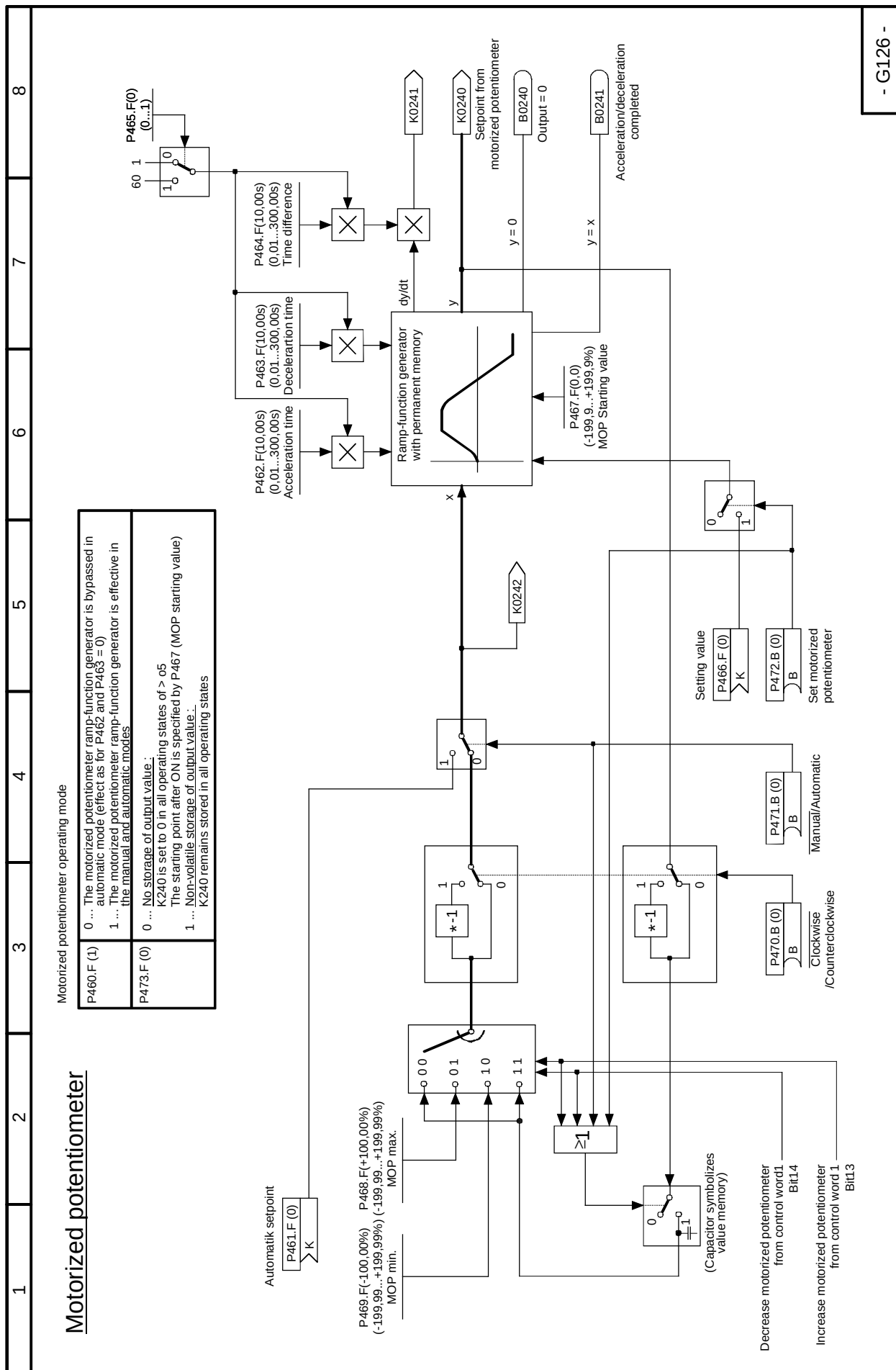
Sheet G120 Fixed values, fixed control bits, constant fixed values and control bits, connector and binector displays

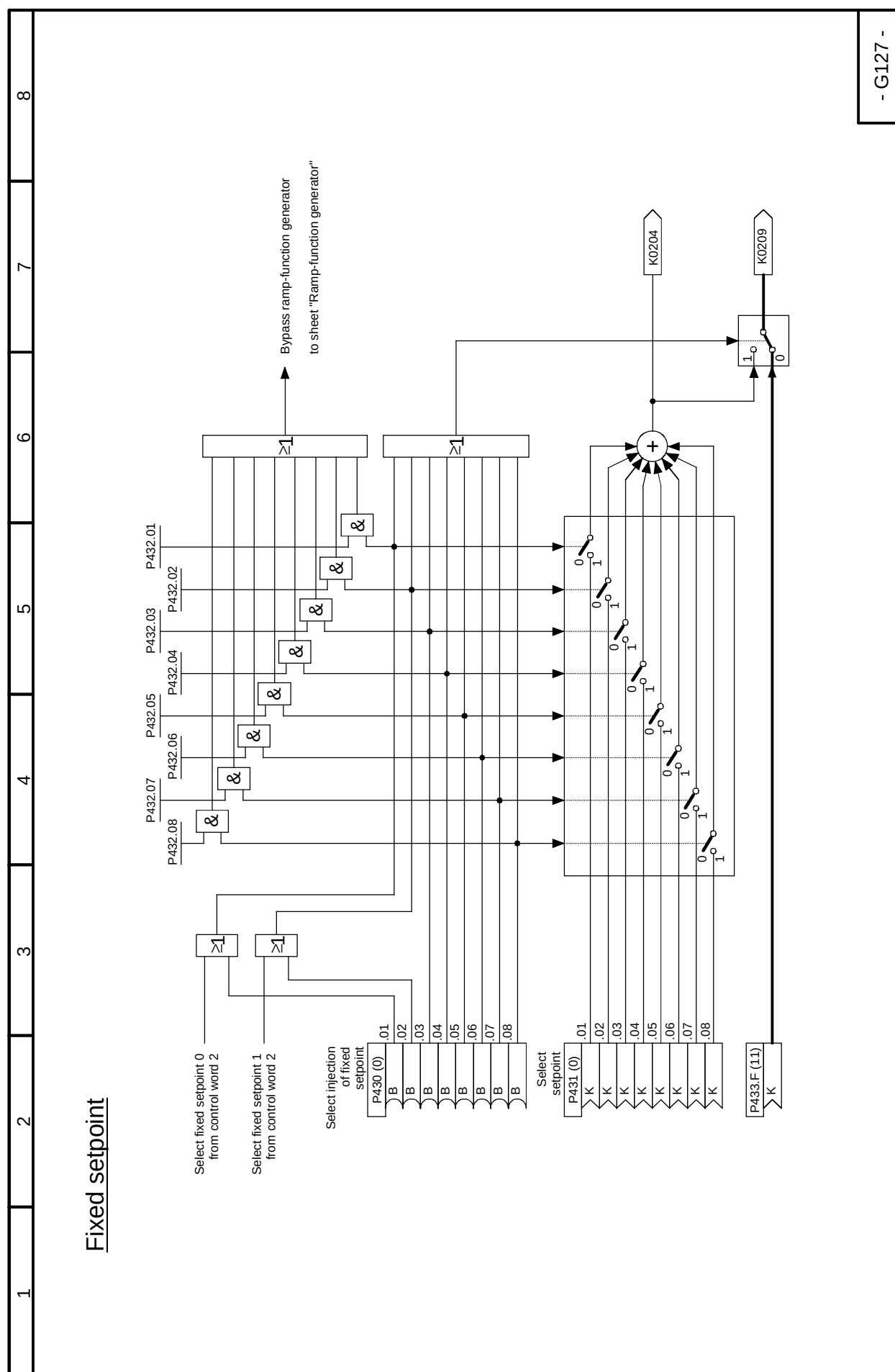


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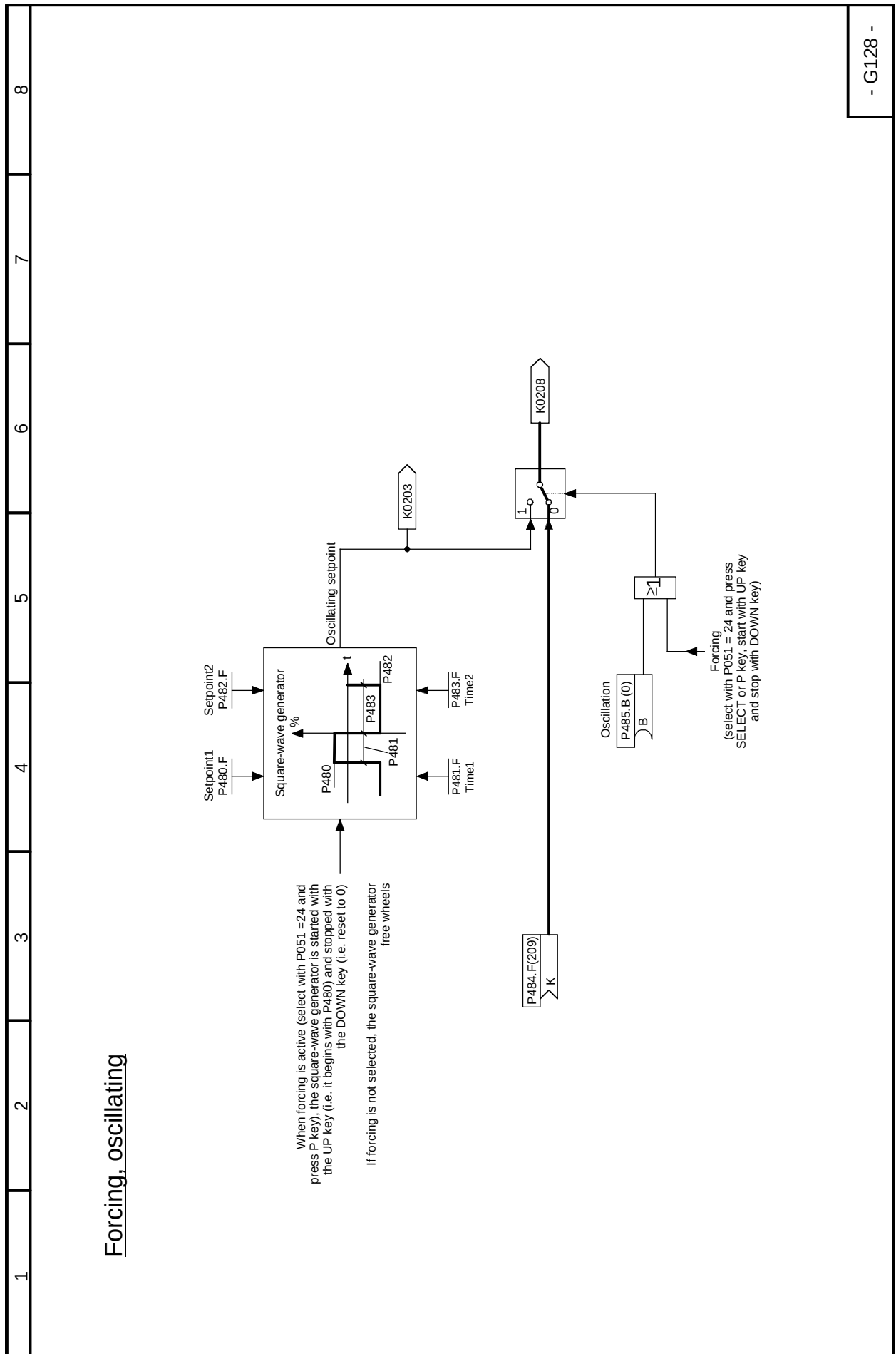


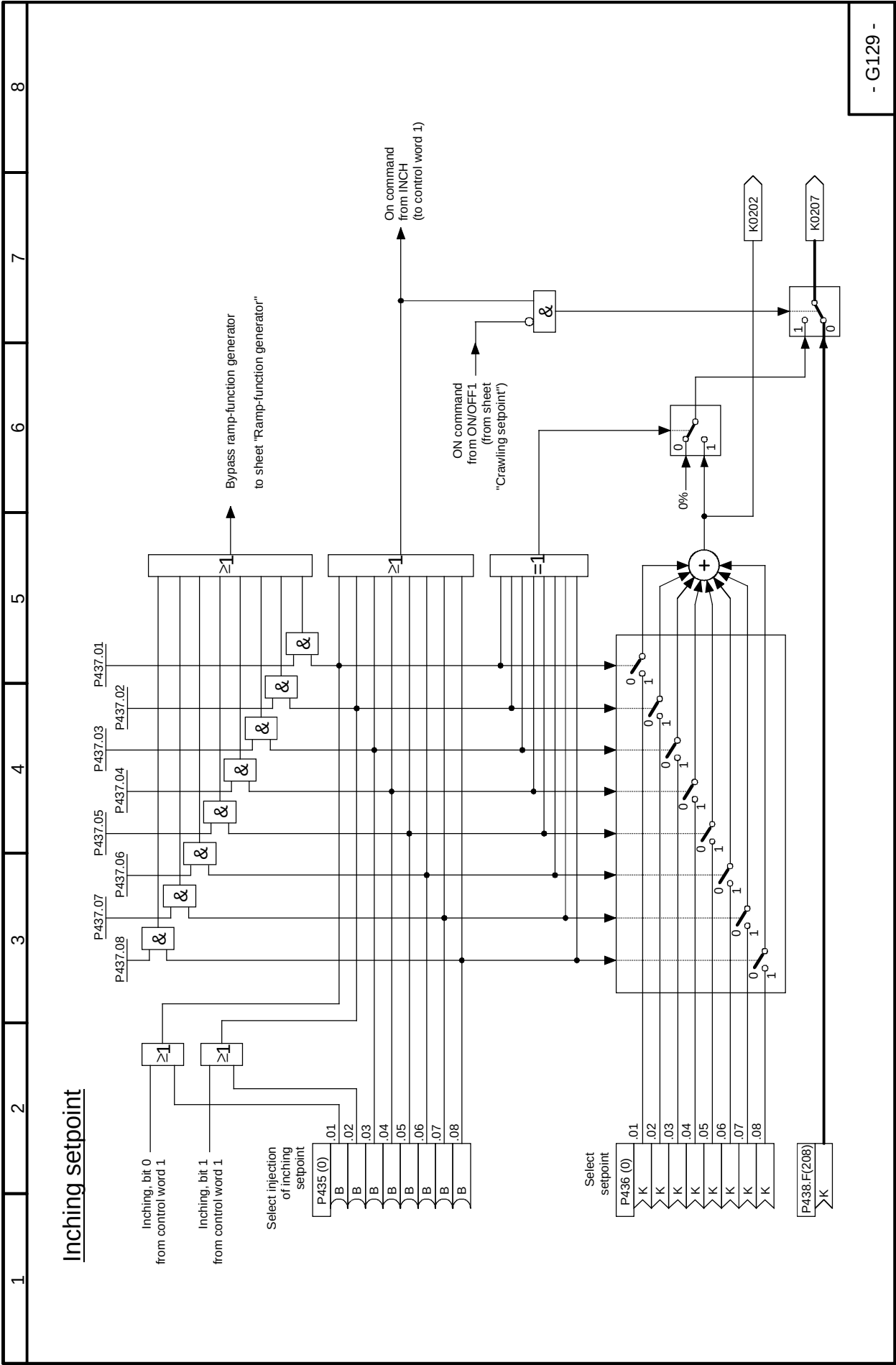
Sheet G126 Motorized potentiometer





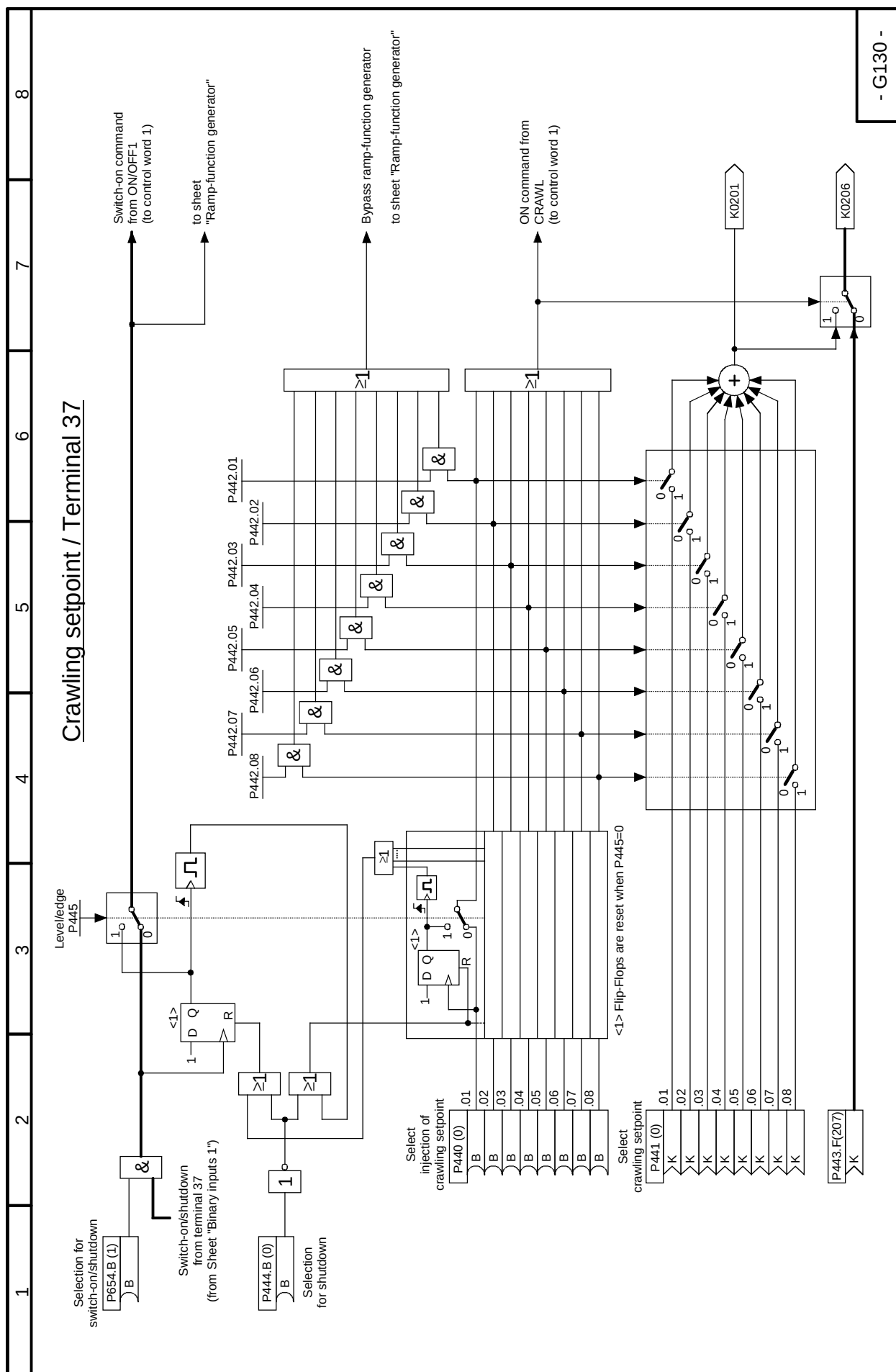
Sheet G128 Forcing, oscillation





- G129 -

Sheet G130 Crawling setpoint / terminal 37





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5

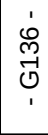
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3

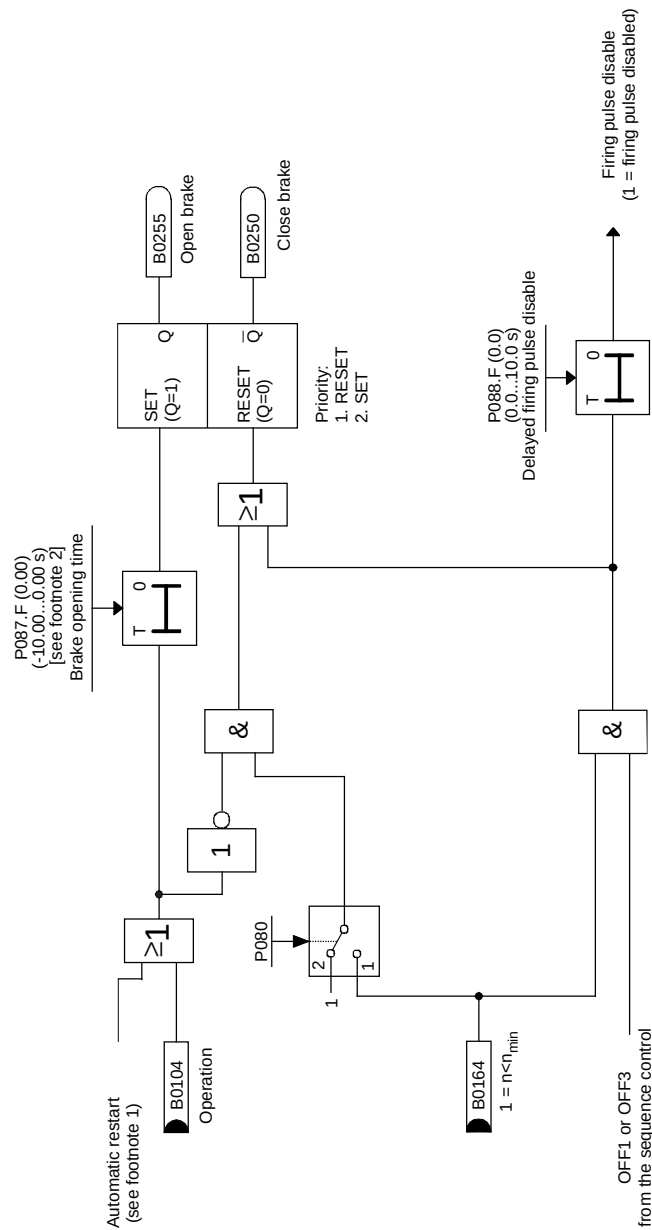
2

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- G135 -



Brake control



Footnote 1:

The signal "automatic restart" is generated by the sequence control.

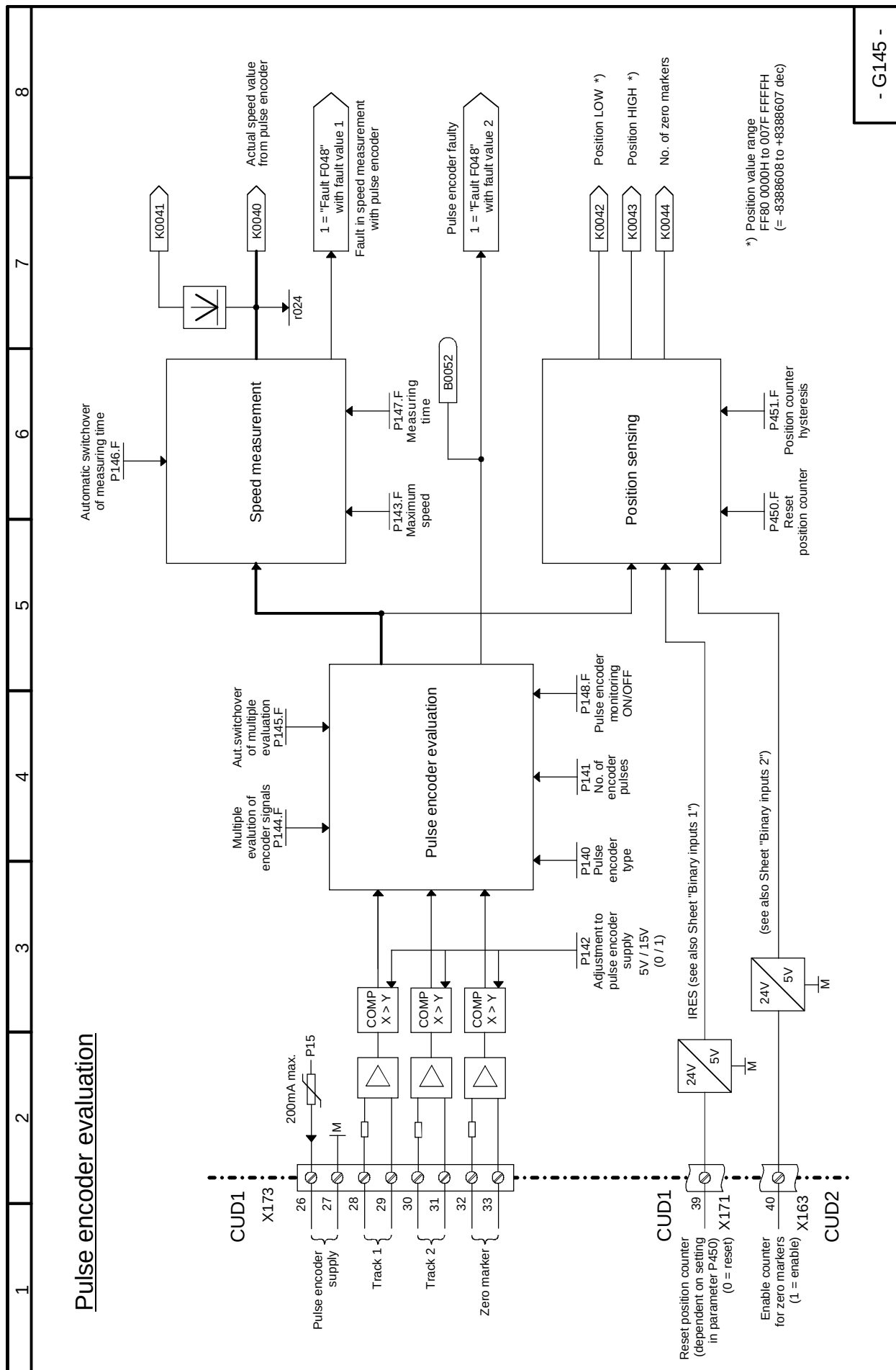
The signal automatic restart is generated by the sequence control. If the voltage at the power section falls briefly in the "operating" state (see P086) (and if automatic restart is selected, i.e. P086 > 0), the "operating" signal goes to log. "0" and the "automatic restart" signal to log. "1" during this time.

This causes the brake to remain open during this short time without torque.

Footnote 2:

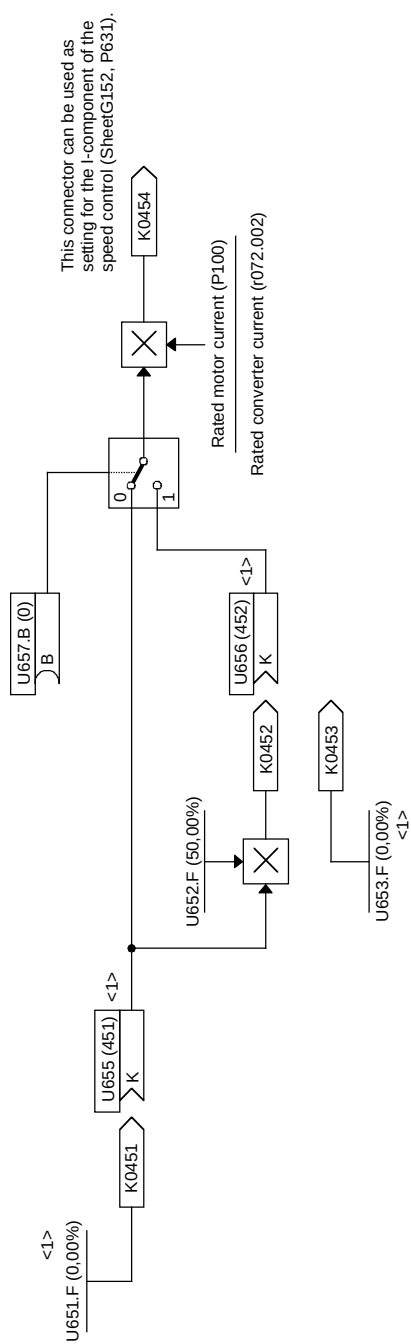
A negative value in P087 means that the signal "Open brake" is delayed with respect to the enable for the firing pulses for the thyristor. Only this case is shown in this function diagram.

Sheet G145 Pulse generator evaluation



- G145 -

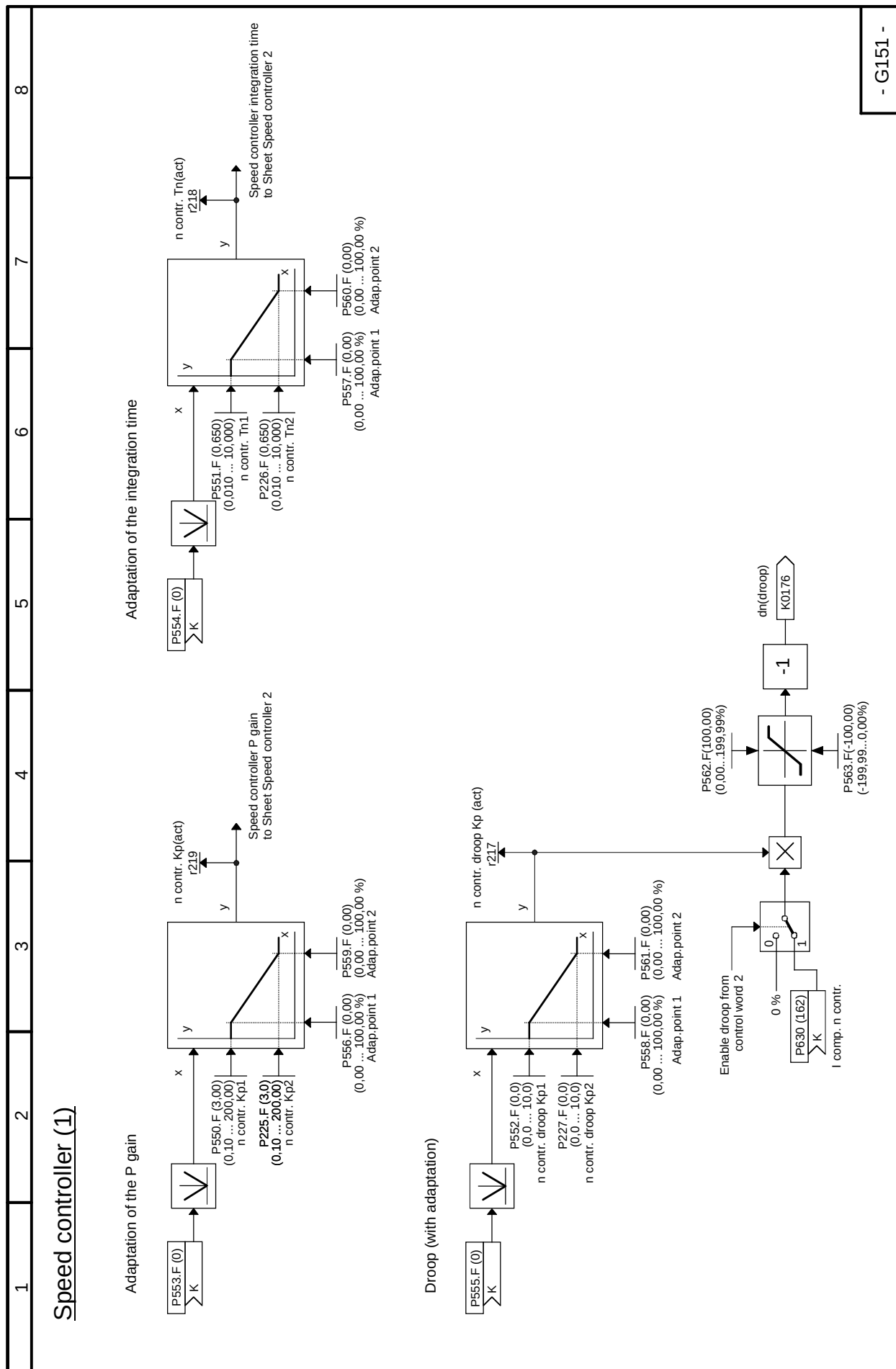
Starting pulse - speed controller

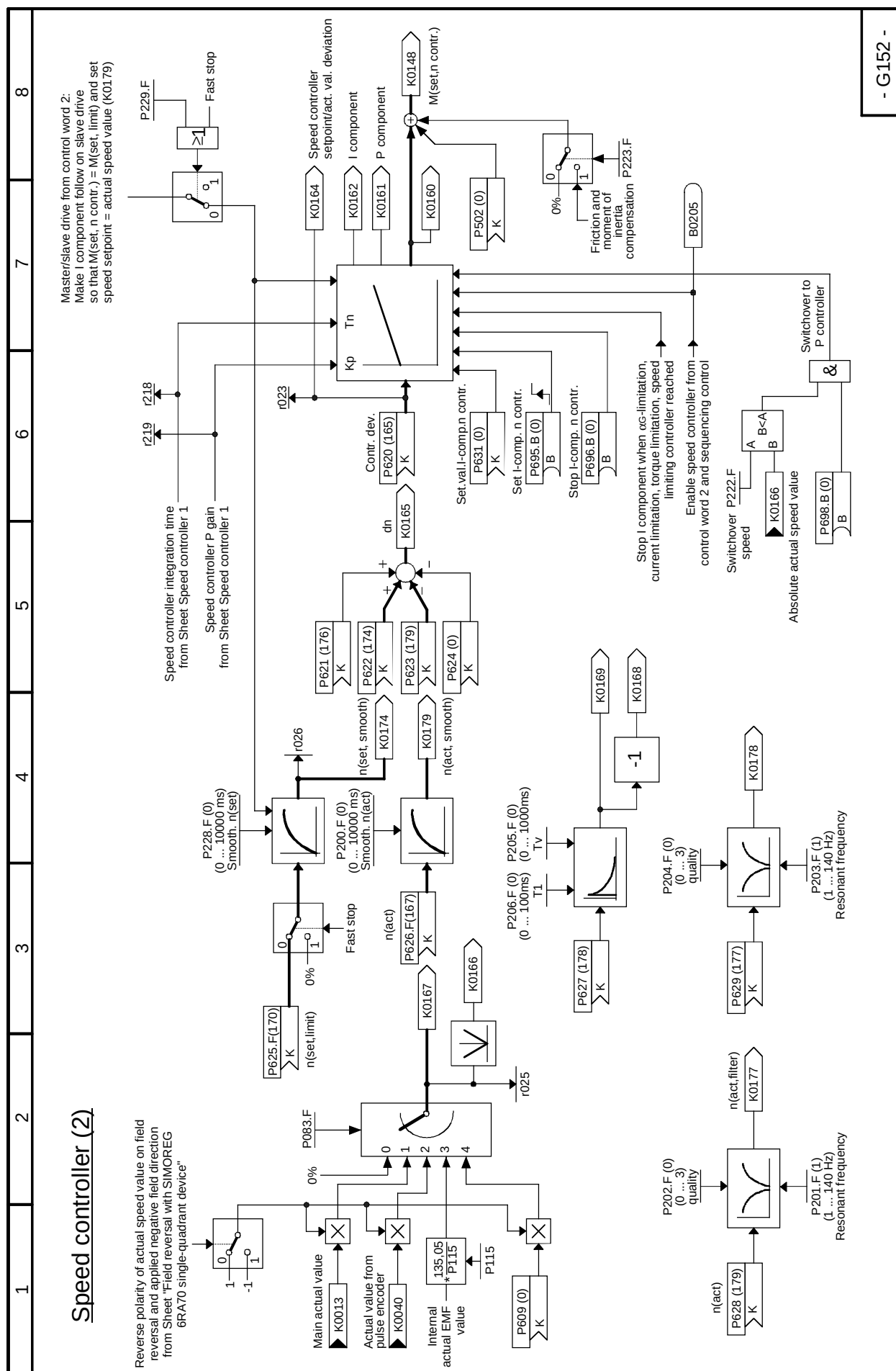


<1> 100% corresponds to 100% of the rated current of the motor (P100)

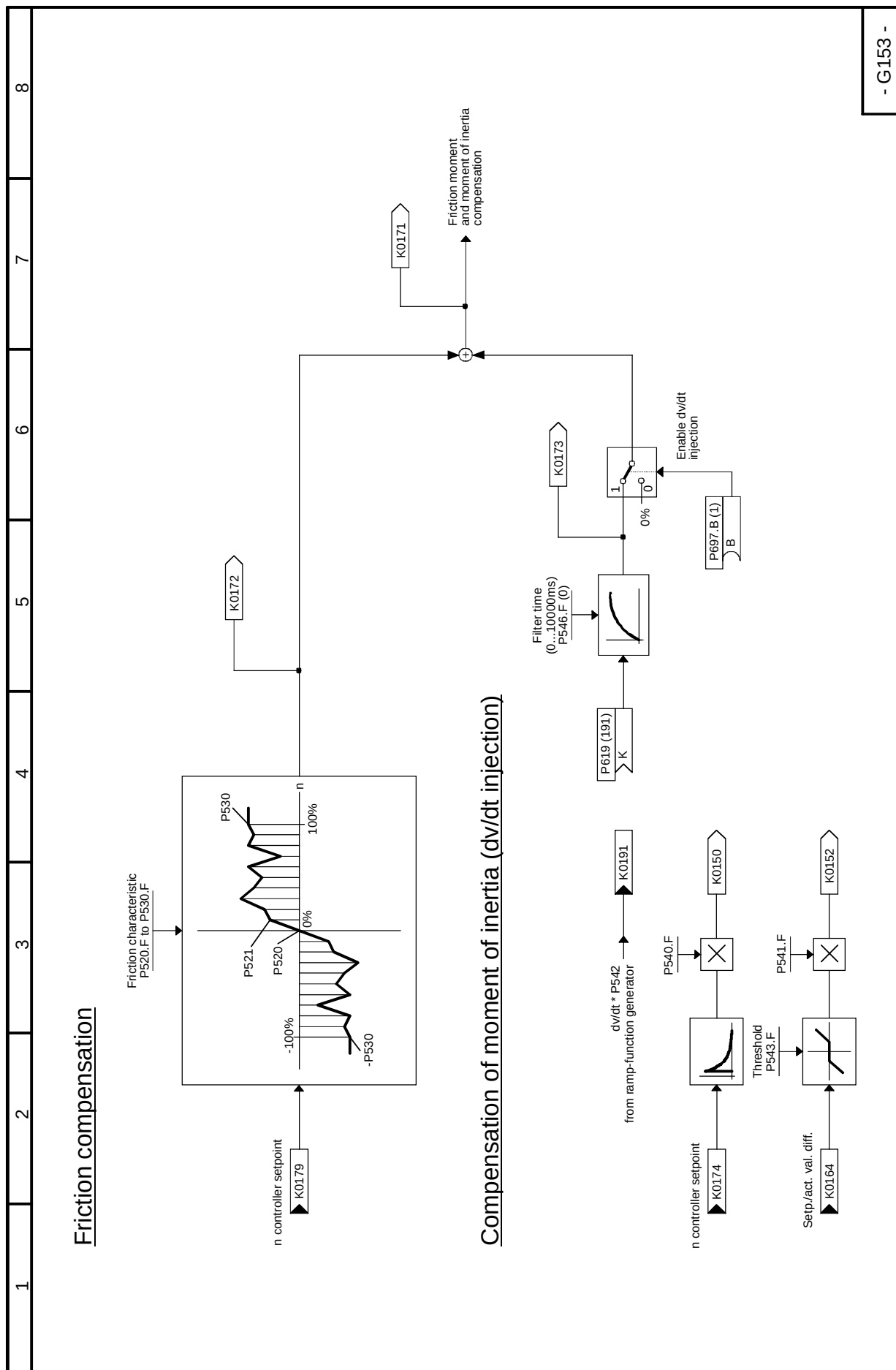
- G150 -

Sheet G151 Speed controller (1)



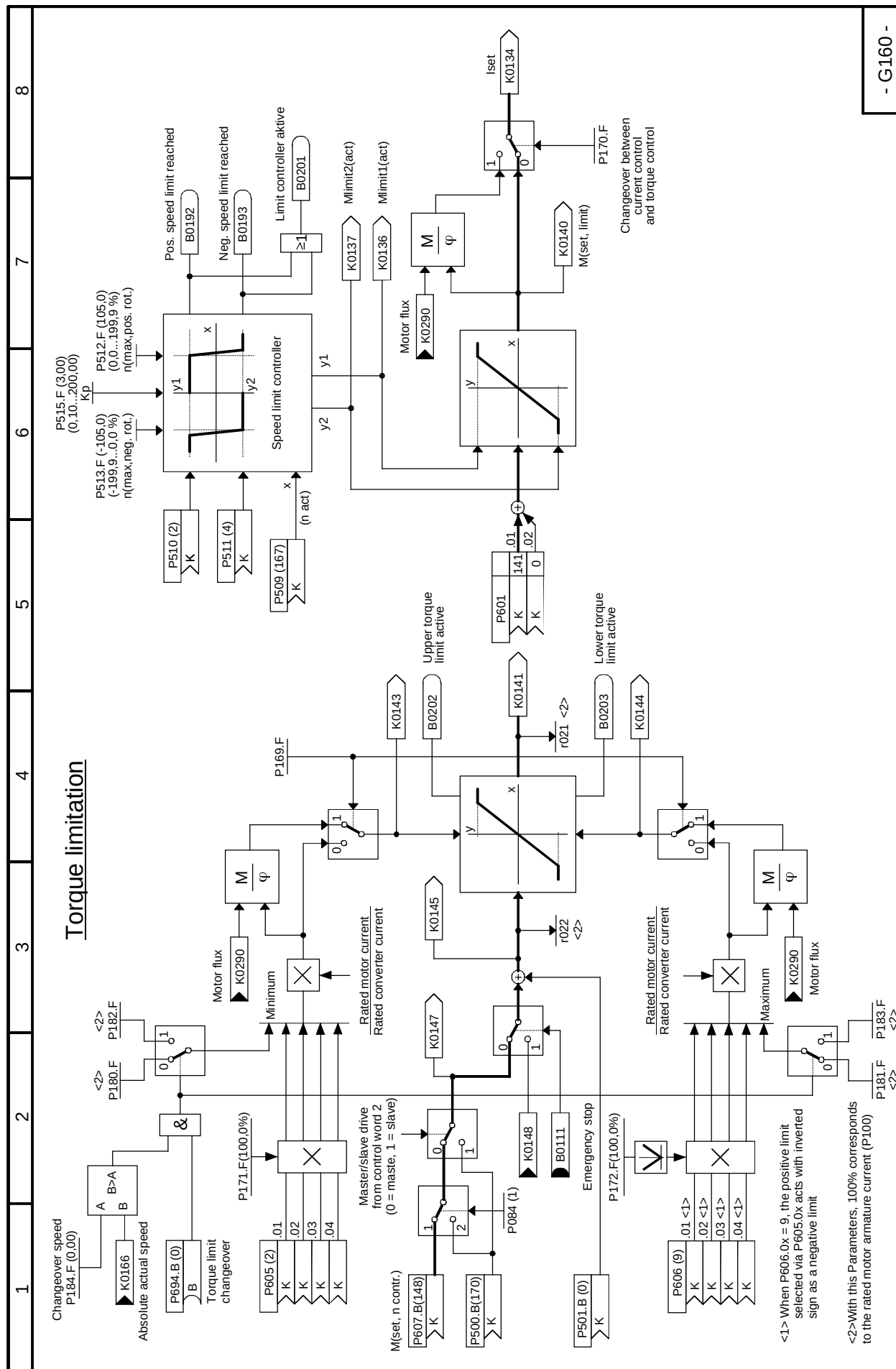


Sheet G153 Friction compensation, Compensation of moment of inertia (dv/dt injection)

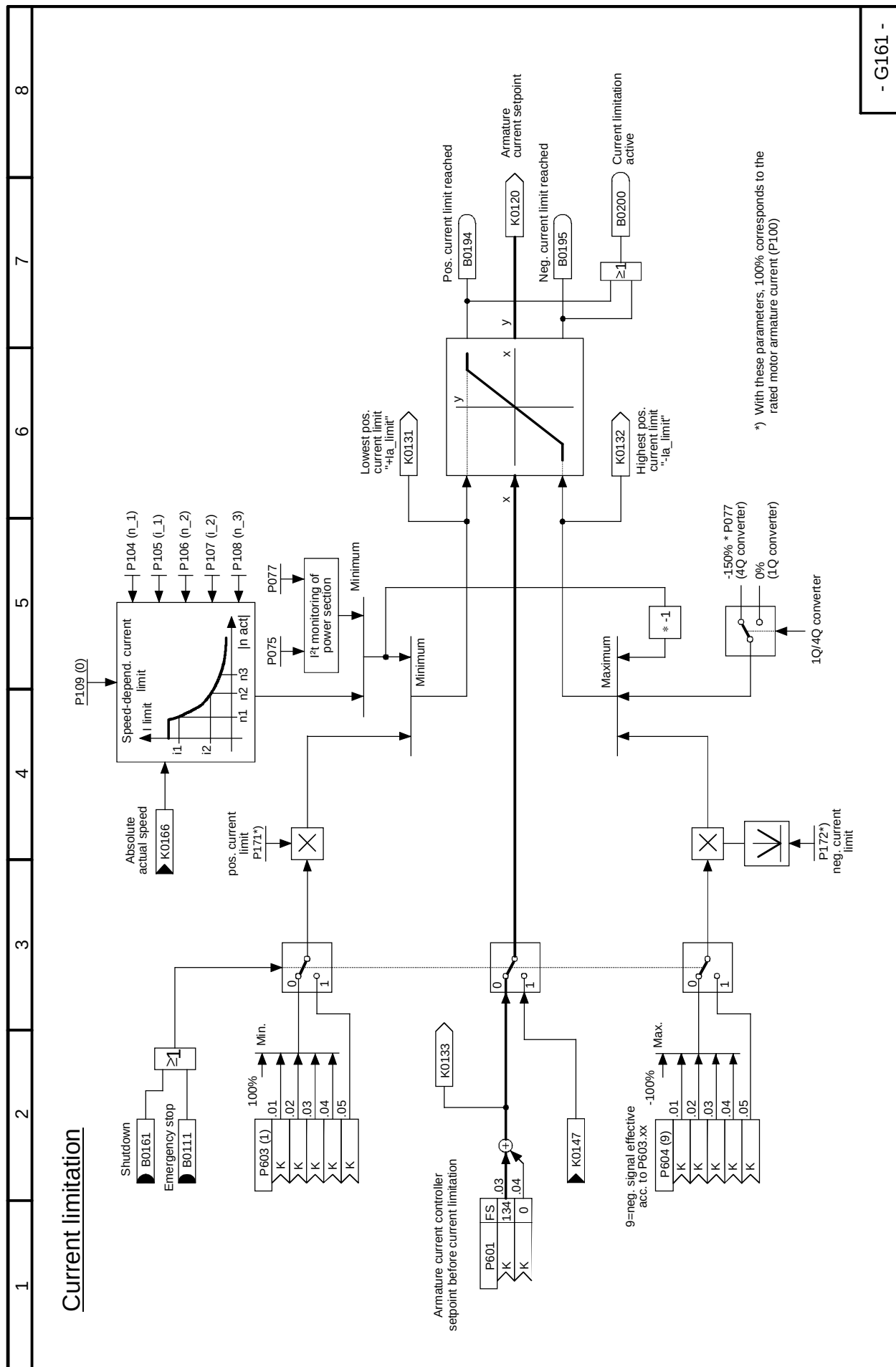


- G153 -

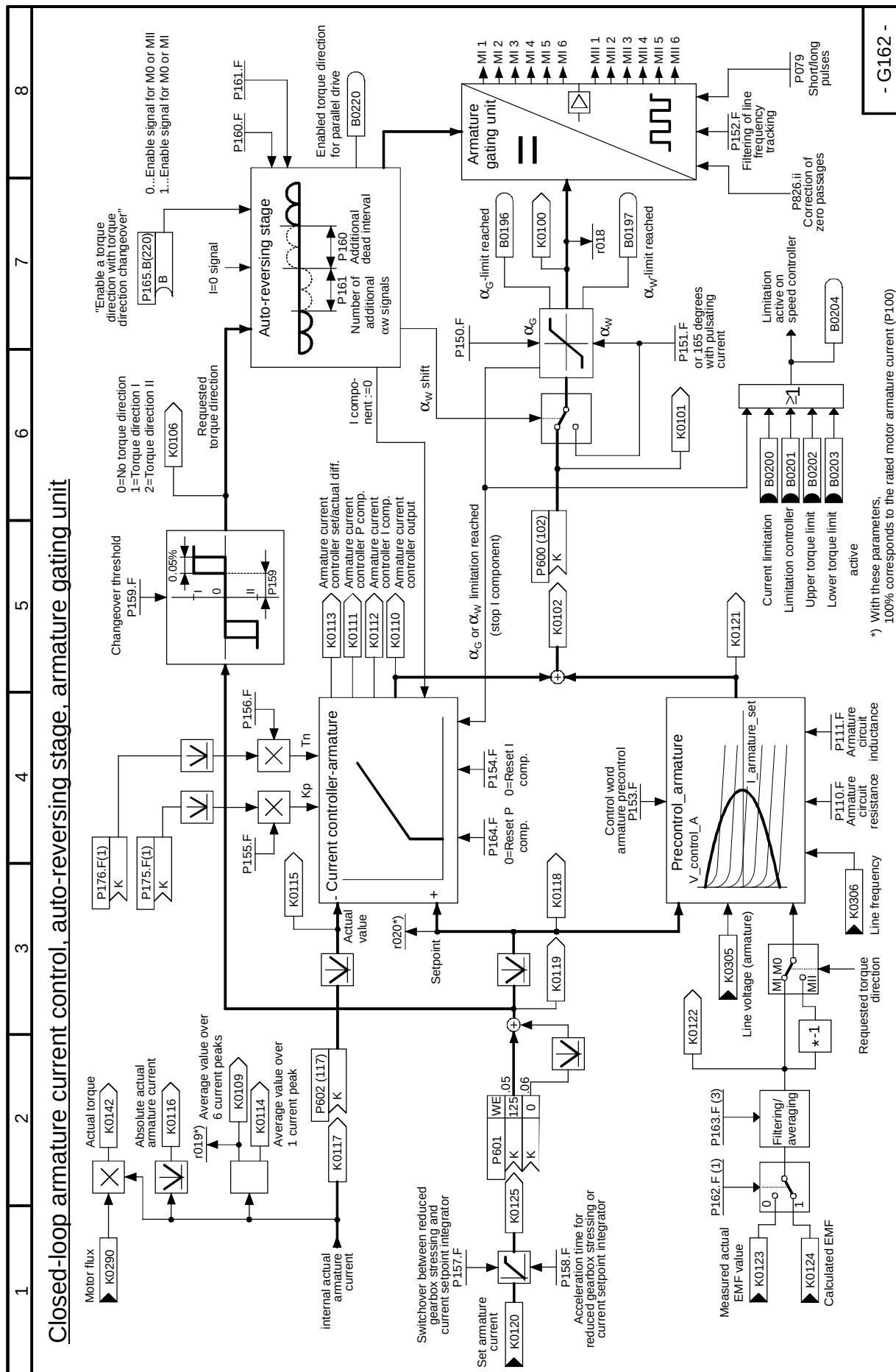
Sheet G160 Torque limitation



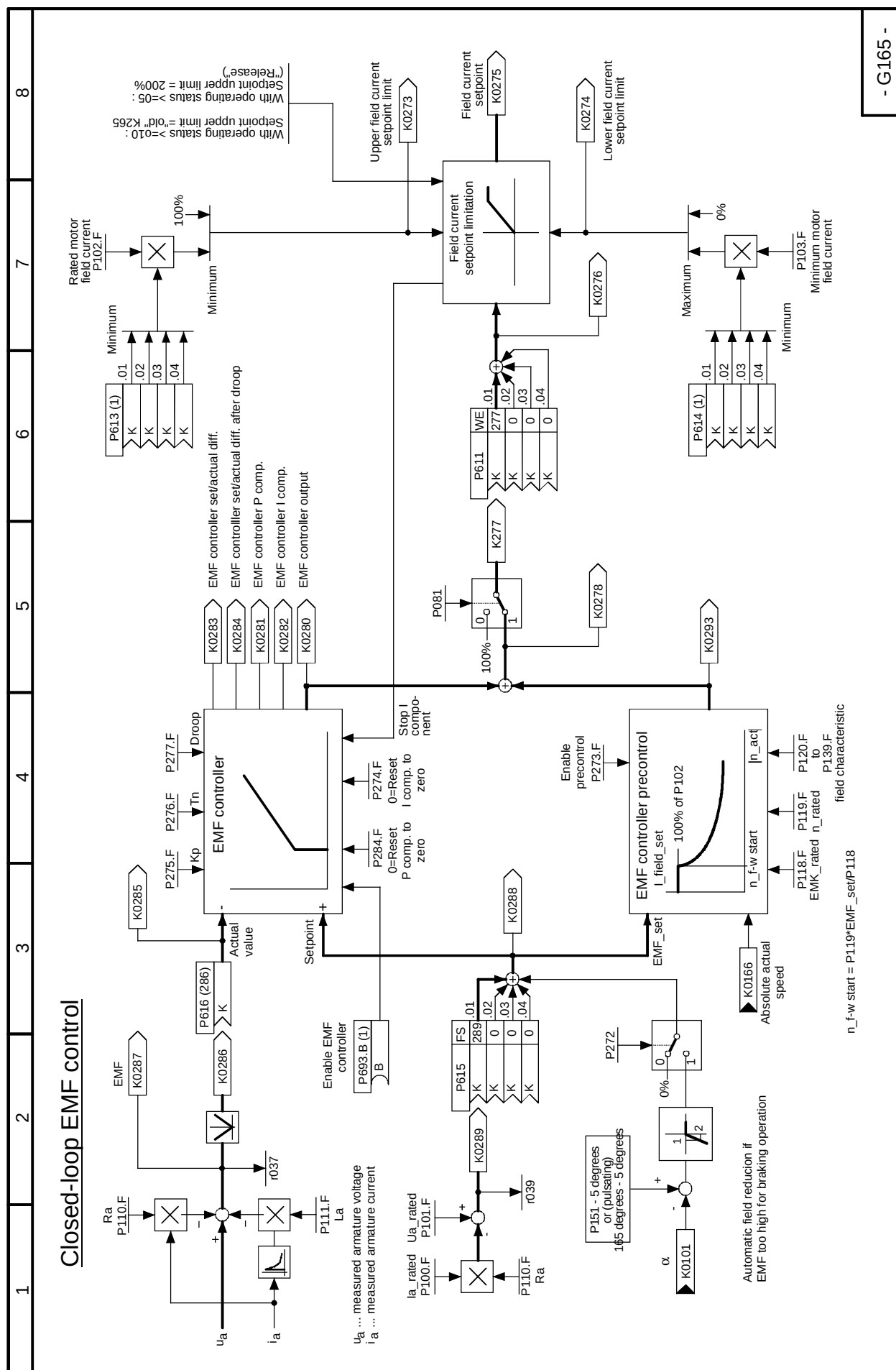
Sheet G161 Current limitation



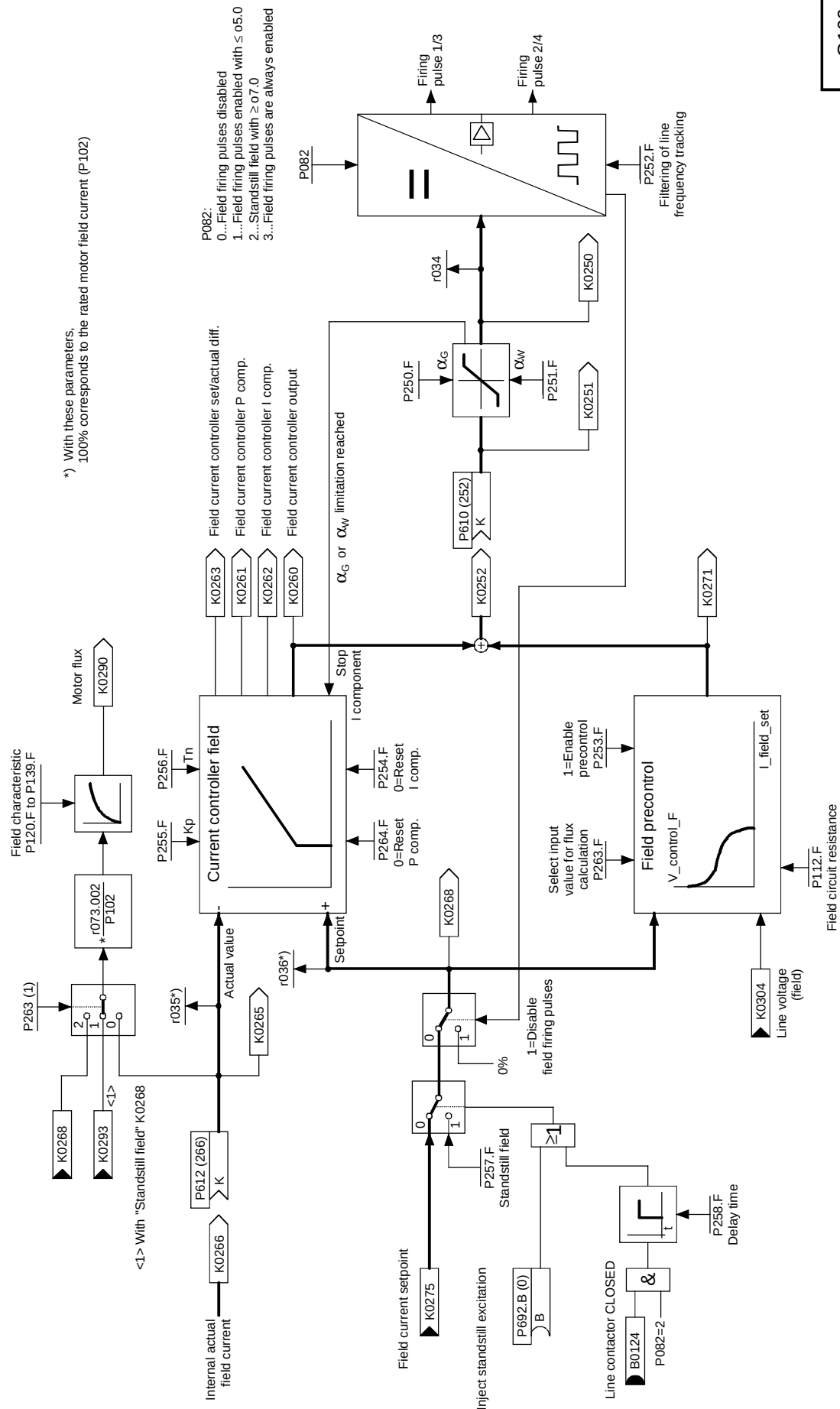
SIEMENS AG 6RX1700-0BD76
SIMOREG CM Operating Instructions



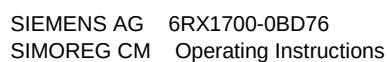
Sheet G165 Closed-loop EMF control



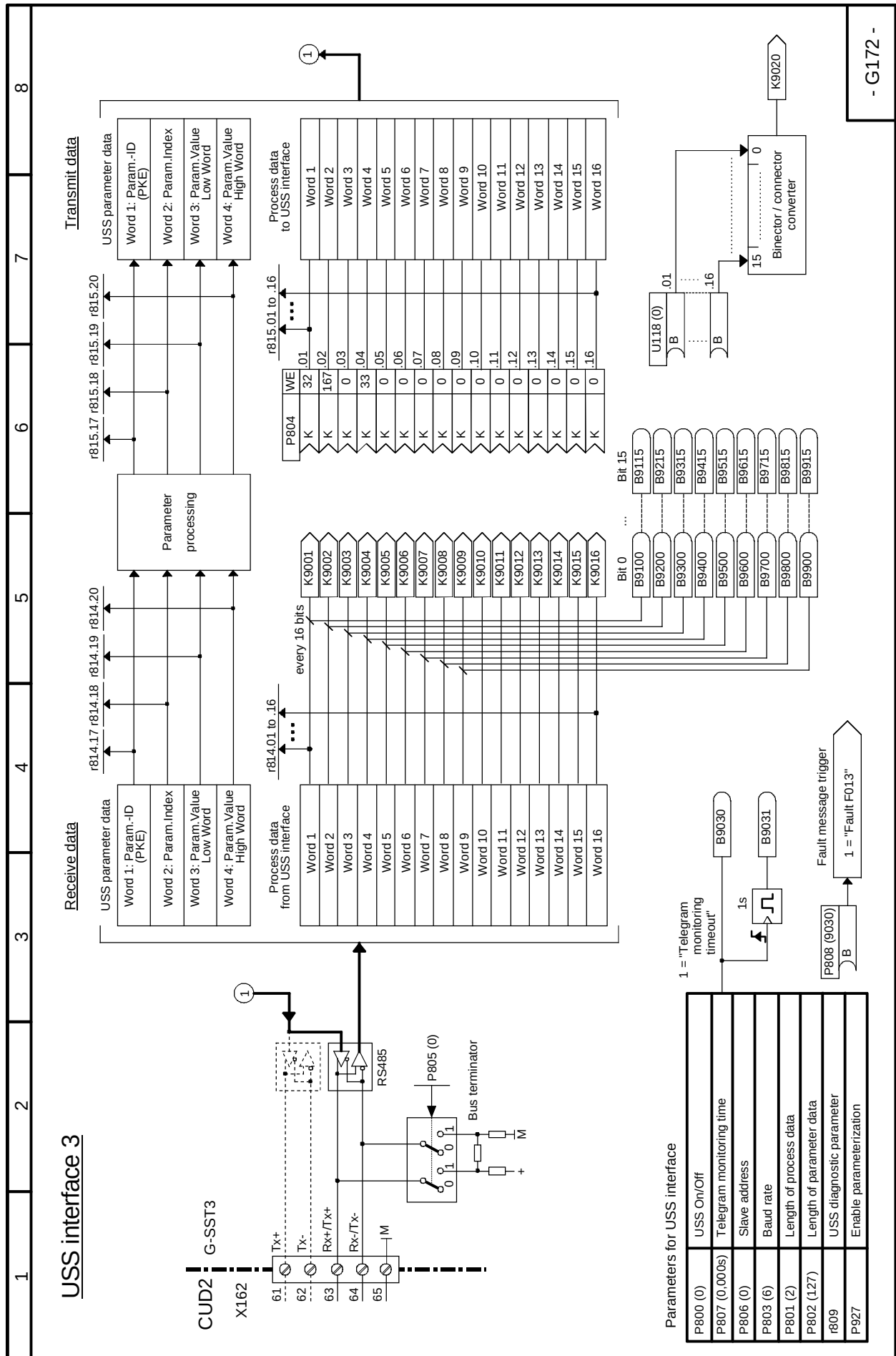
Closed-loop field current control, field gating unit

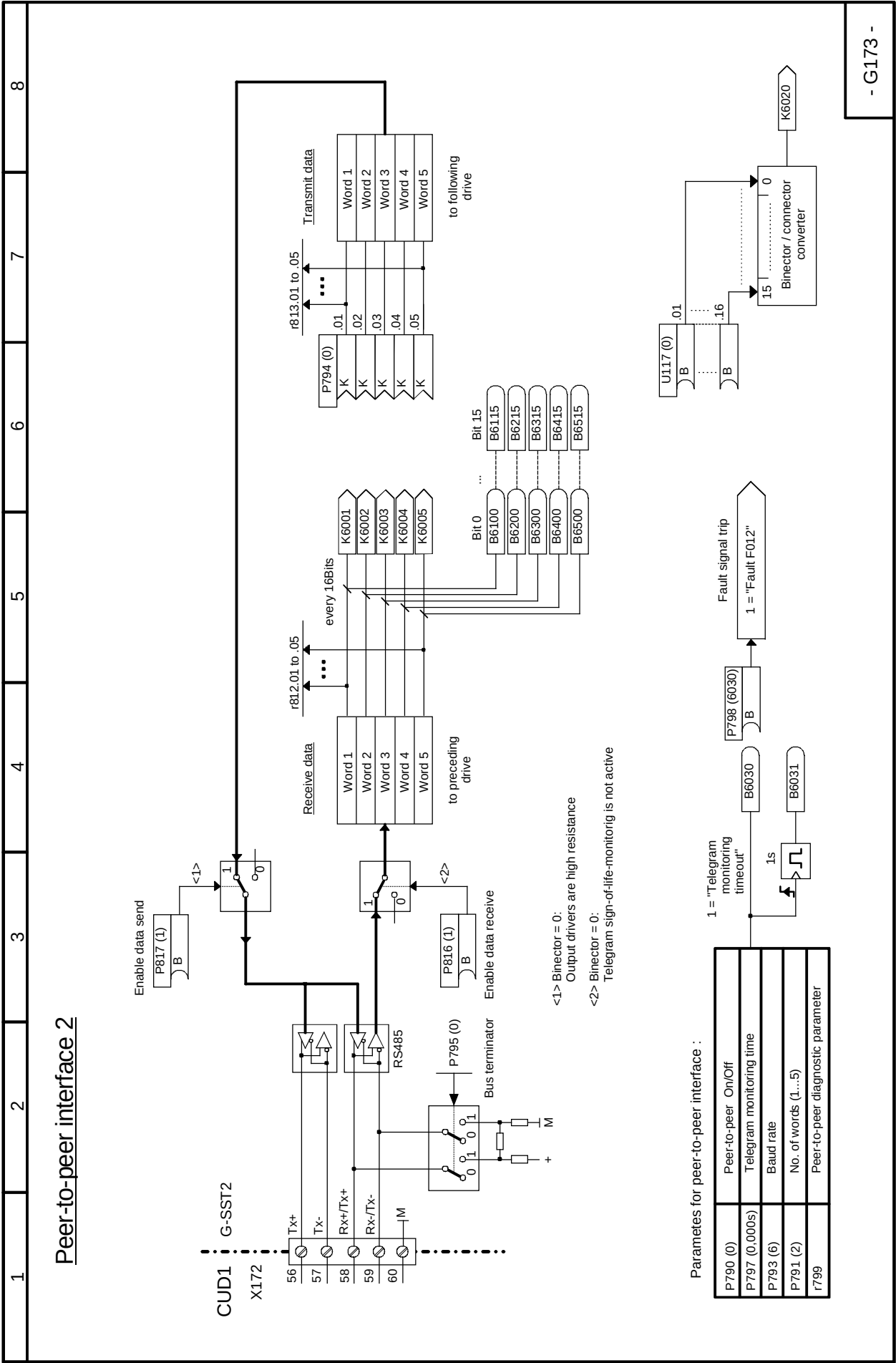


- G166 -

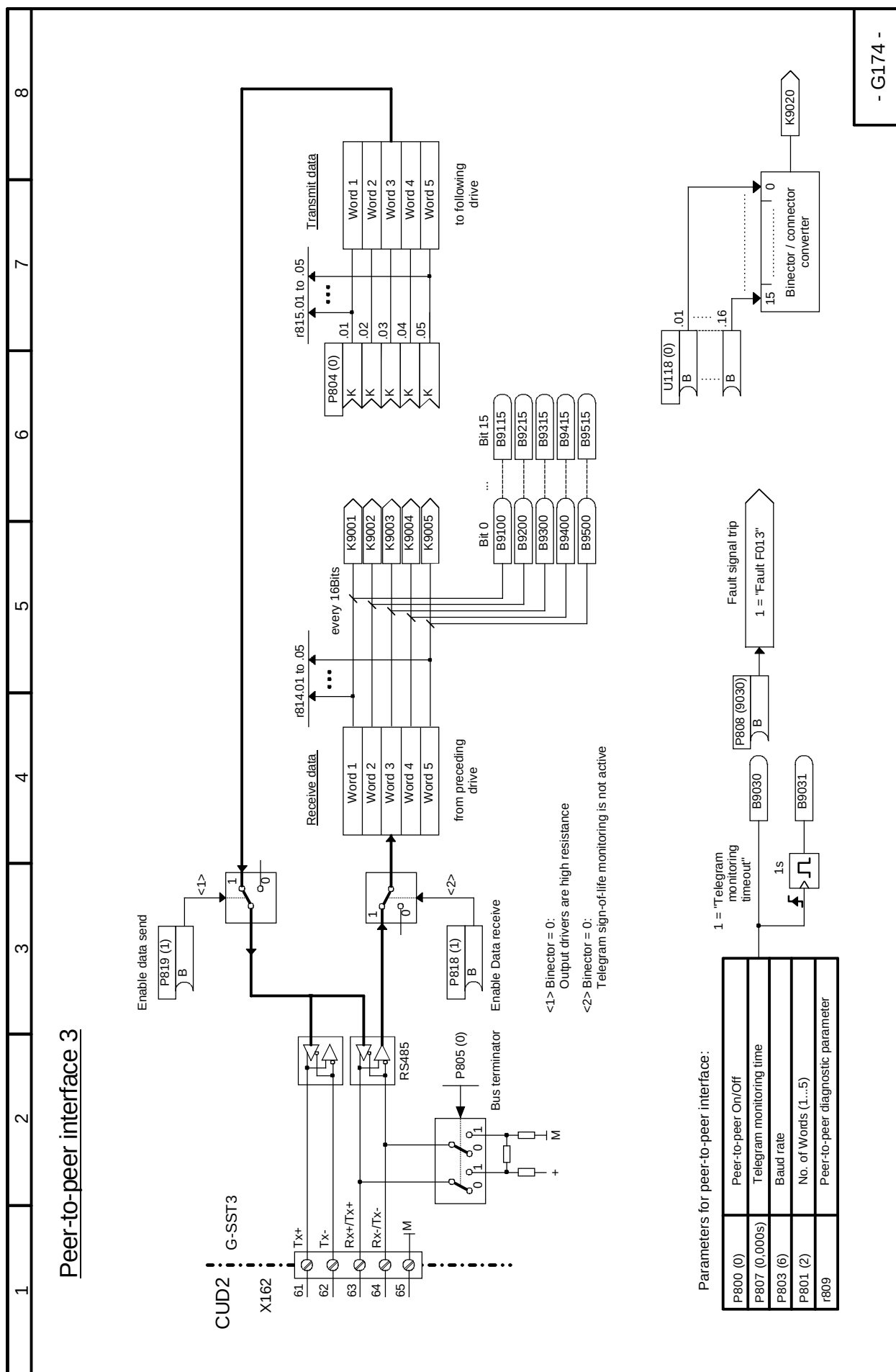


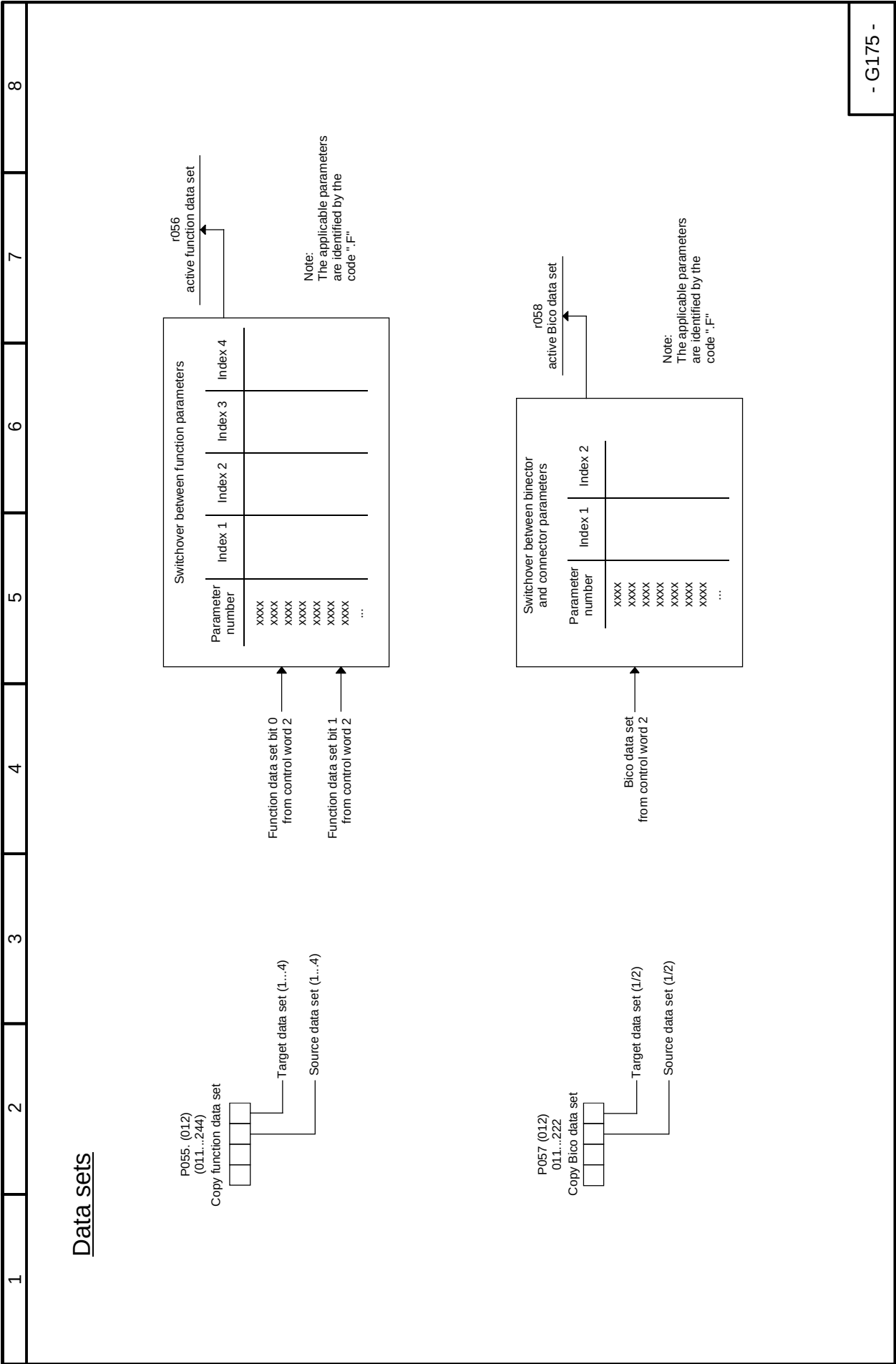
Sheet G172 USS interface 3



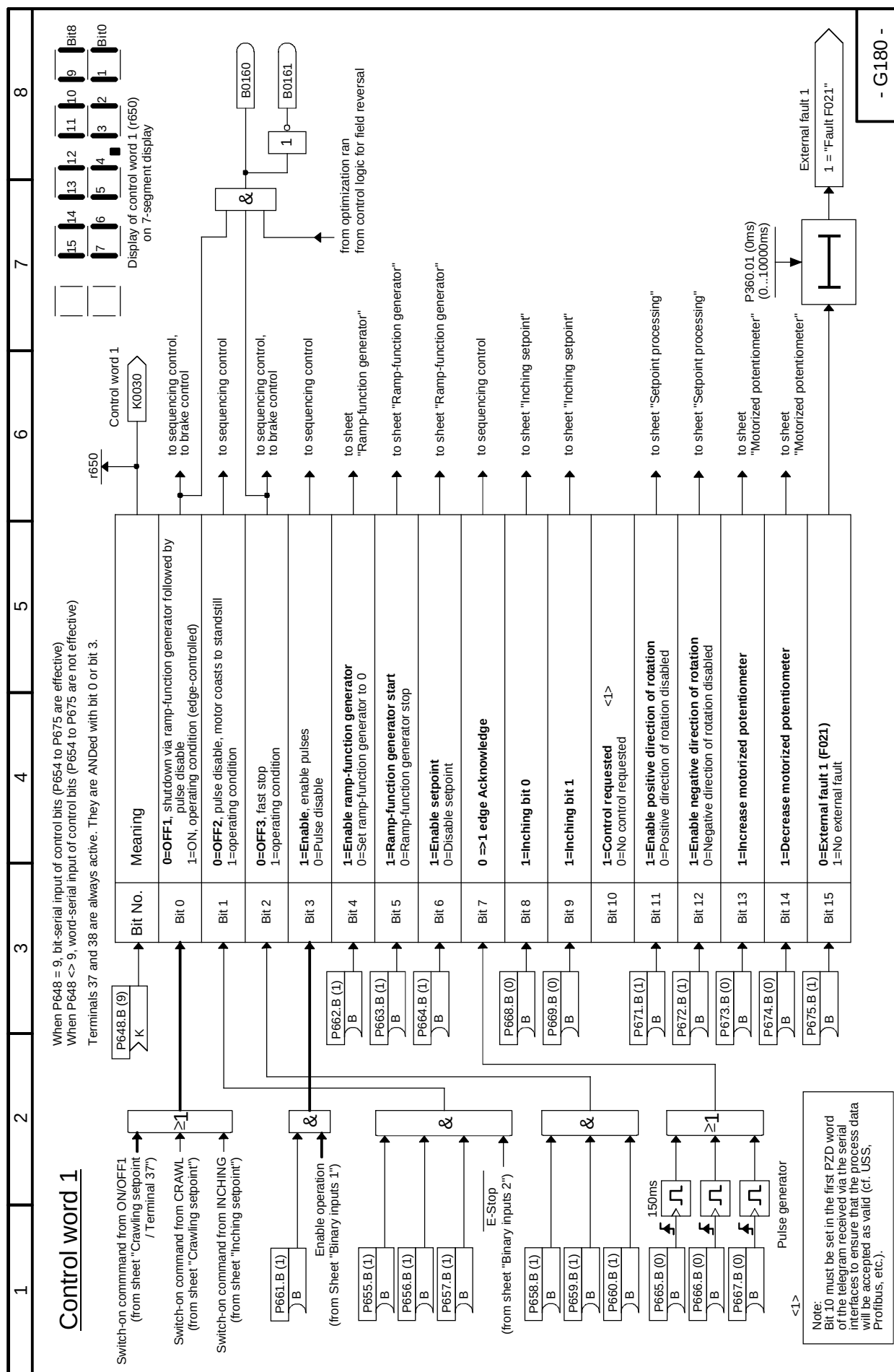


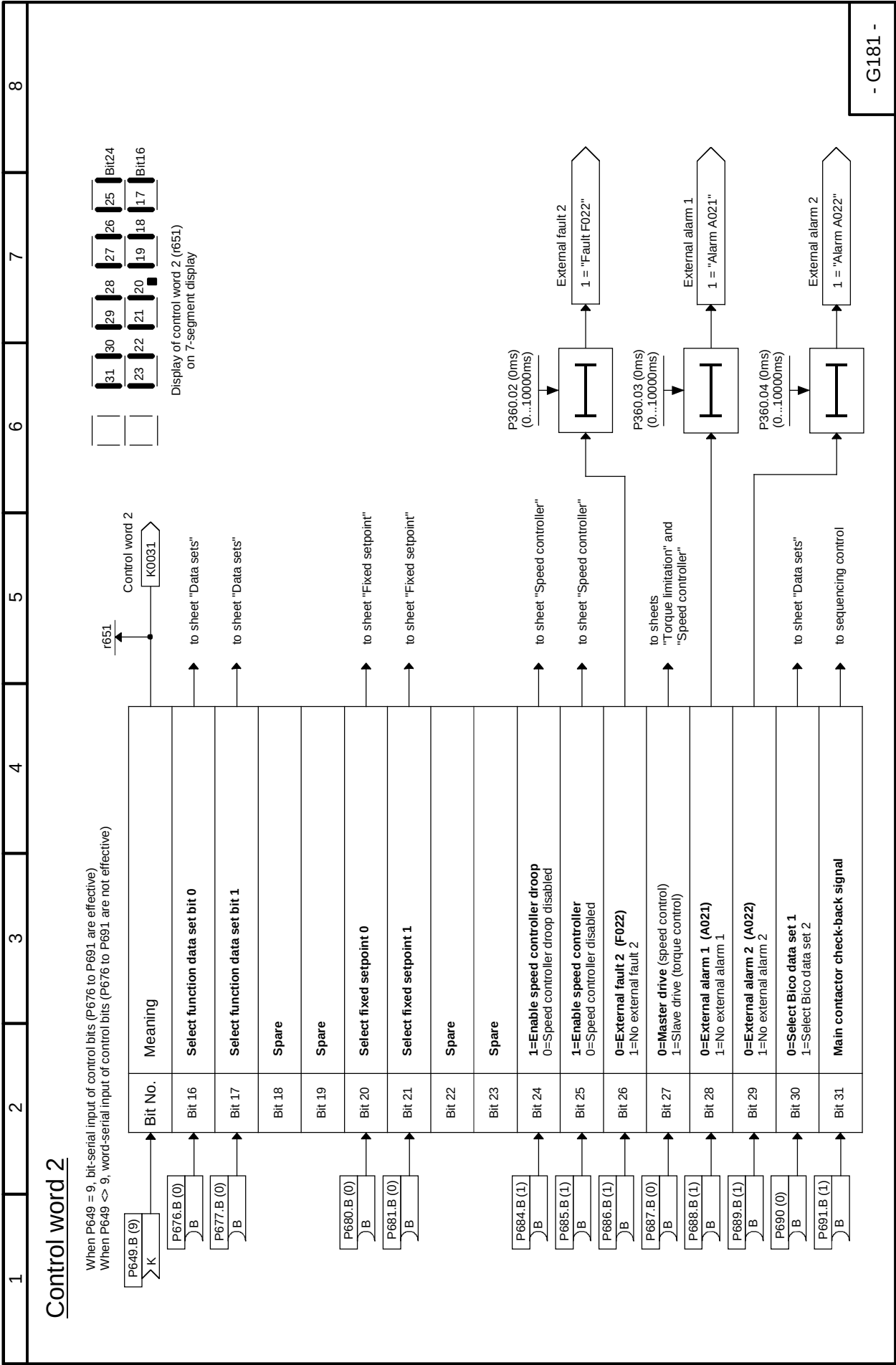
Sheet G174 Peer-to-peer interface 3



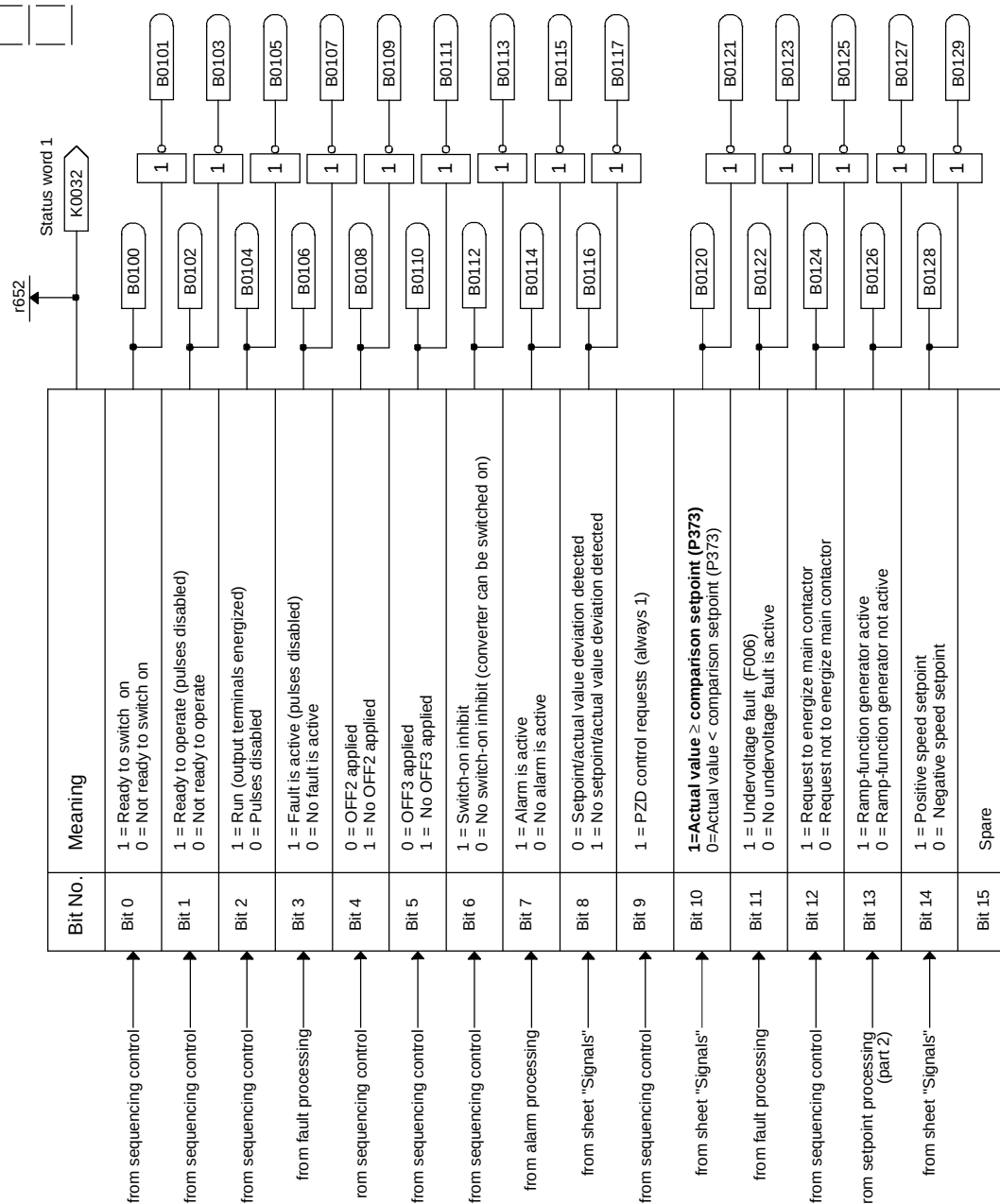


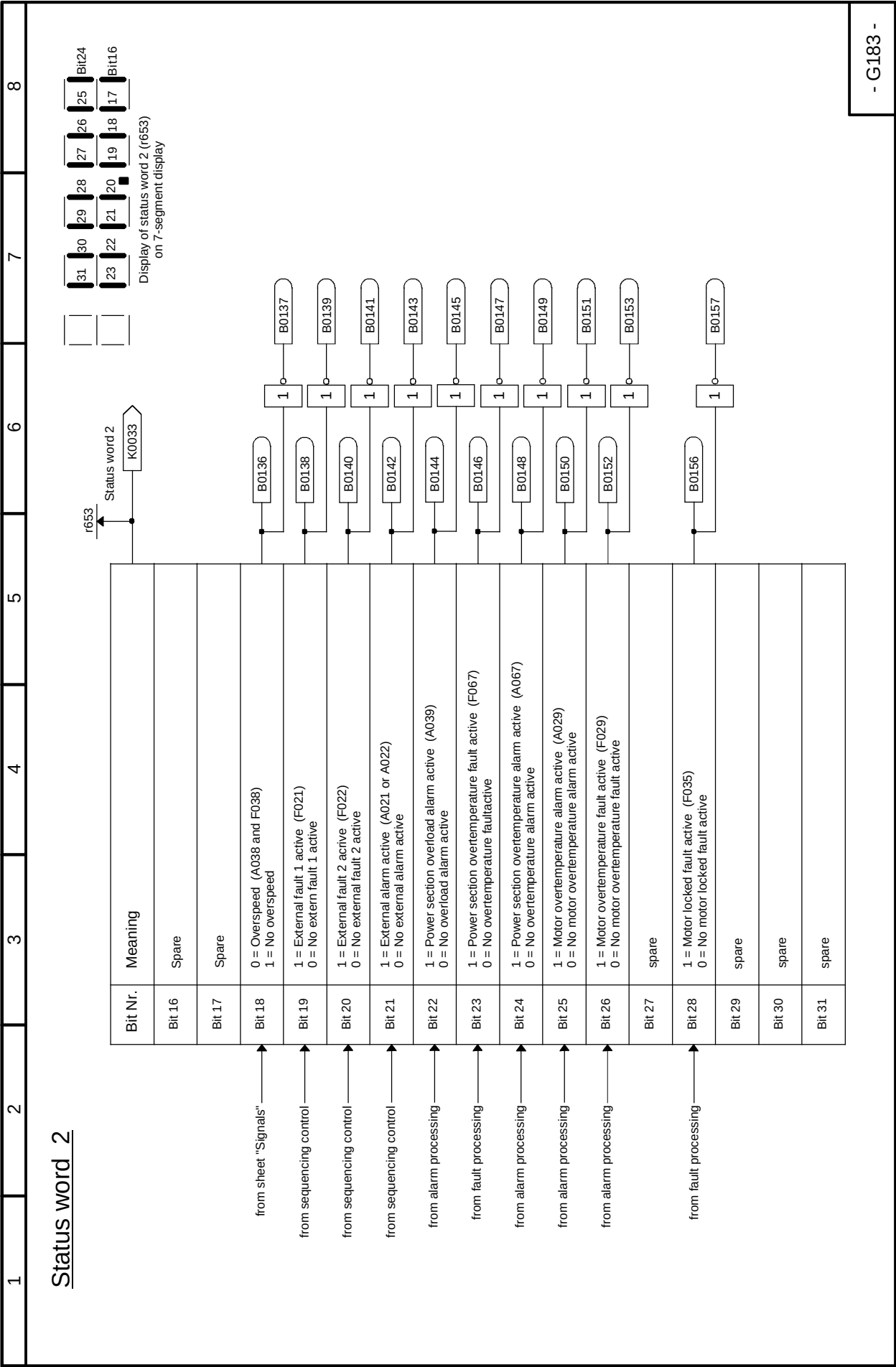
Sheet G180 Control word 1



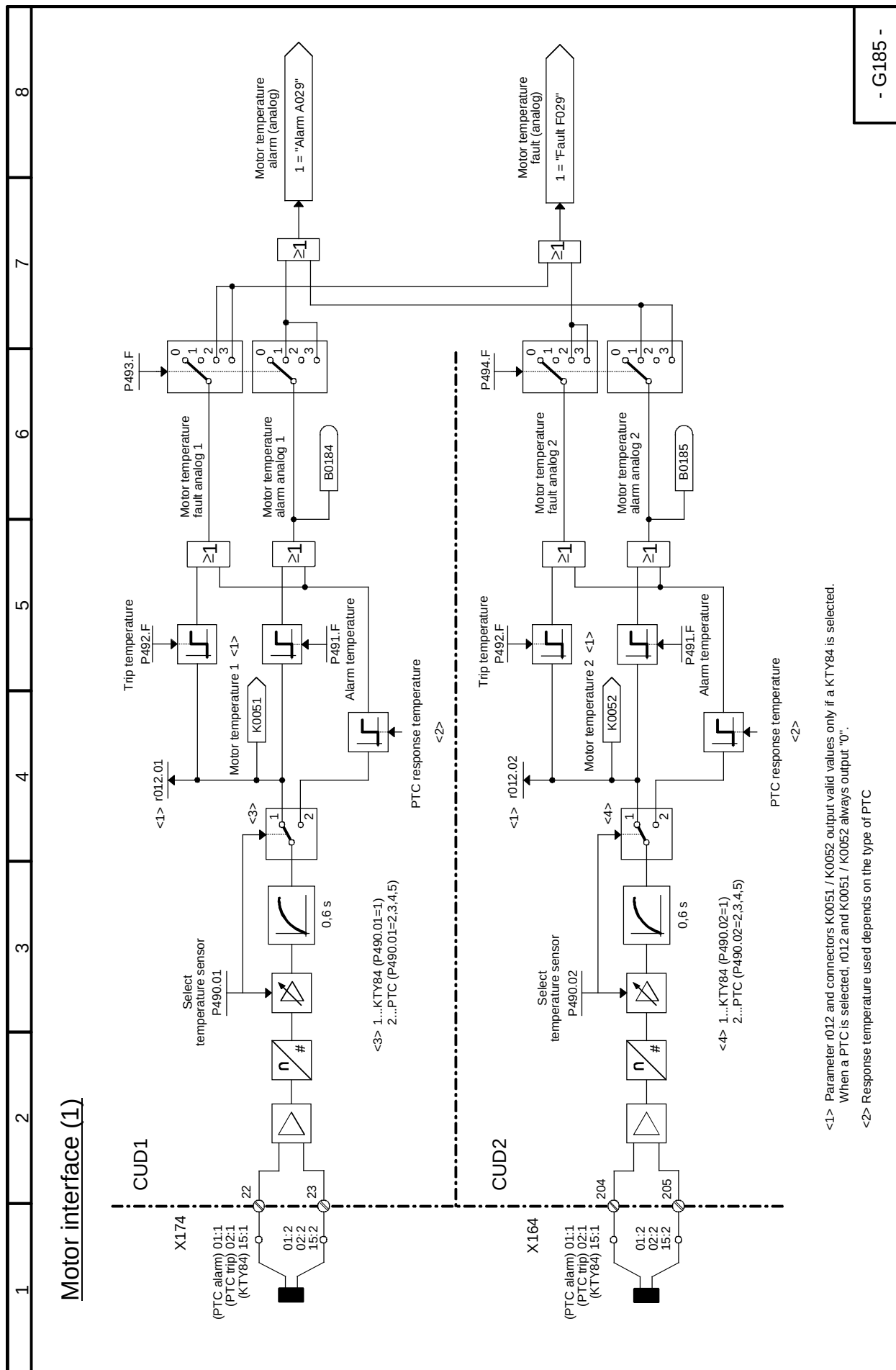


Display of status word 1 (r652)
on 7-segment display



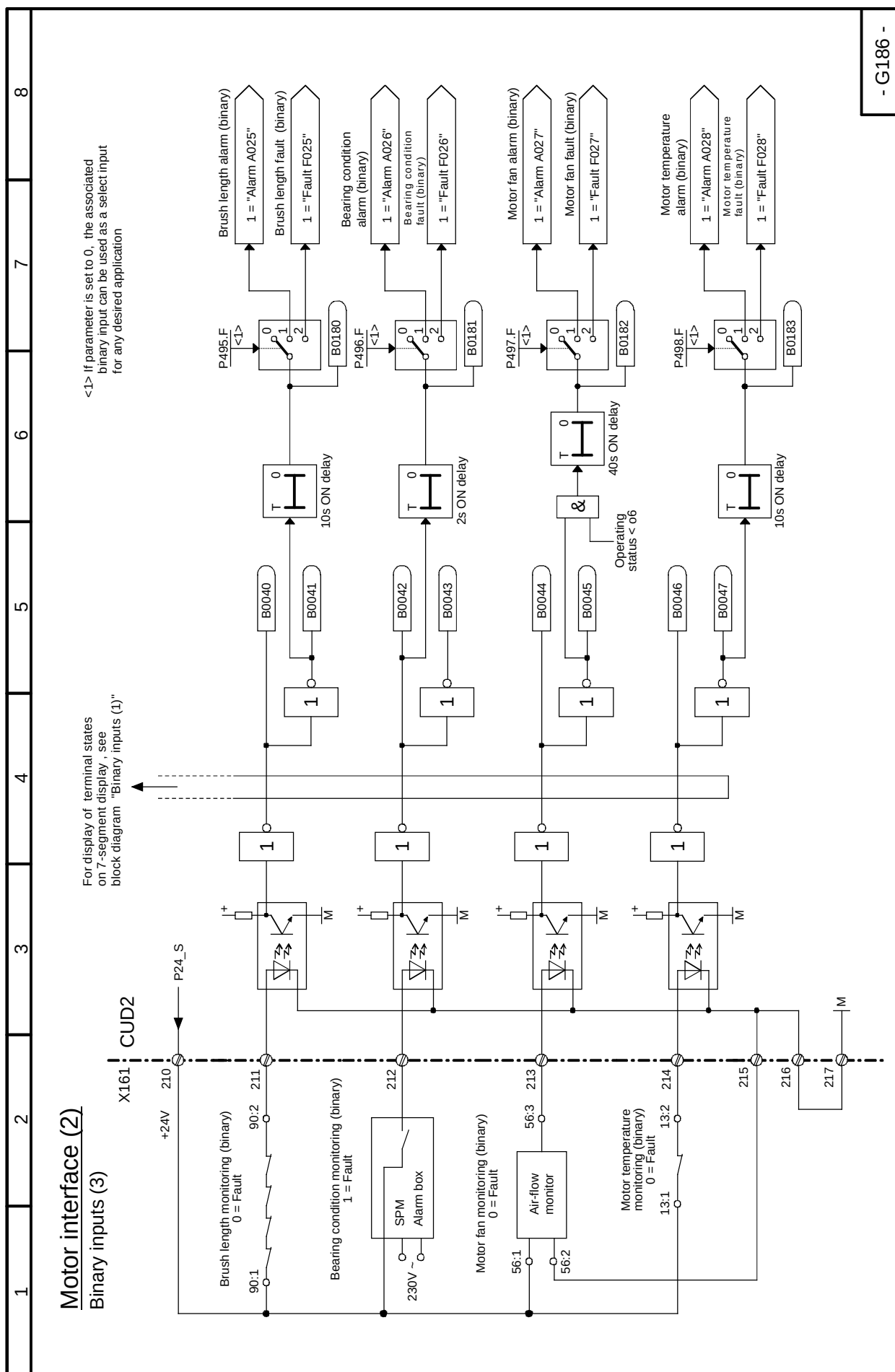


Sheet G185 Motor interface (1)

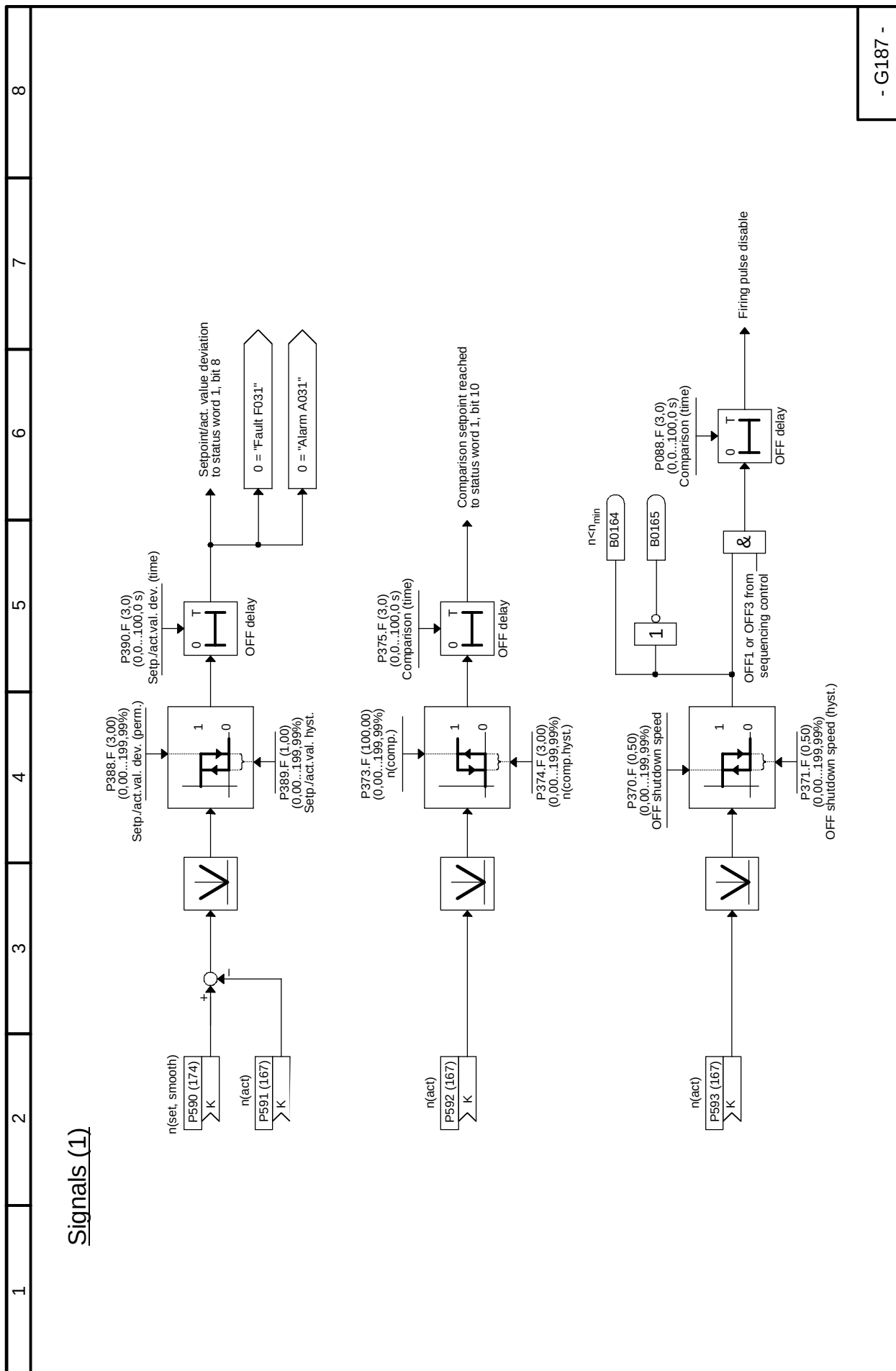


- G185 -

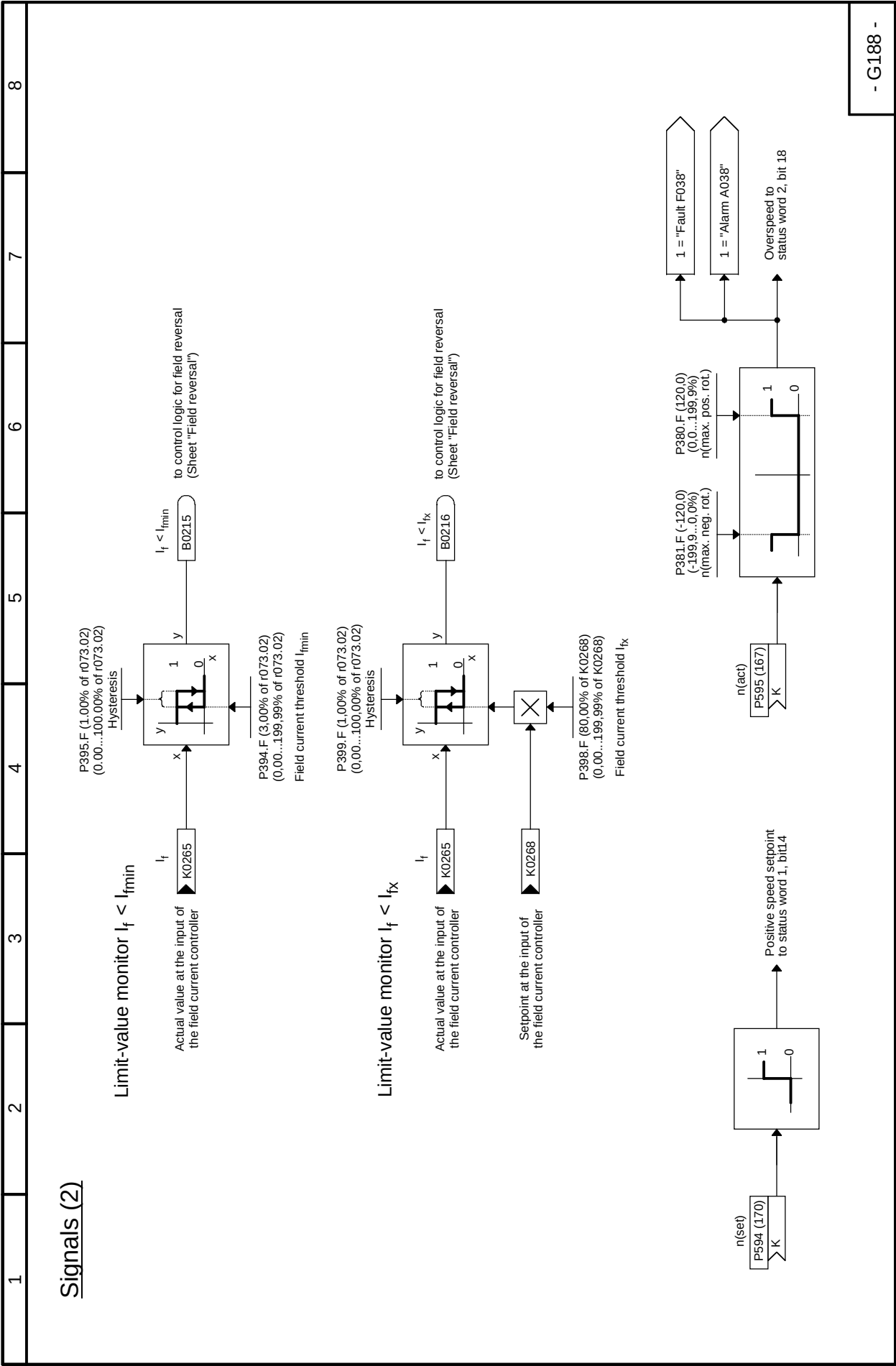
Sheet G186 Motor interface (2) / binary inputs, terminals 211 to 214



Sheet G187 Messages (1)

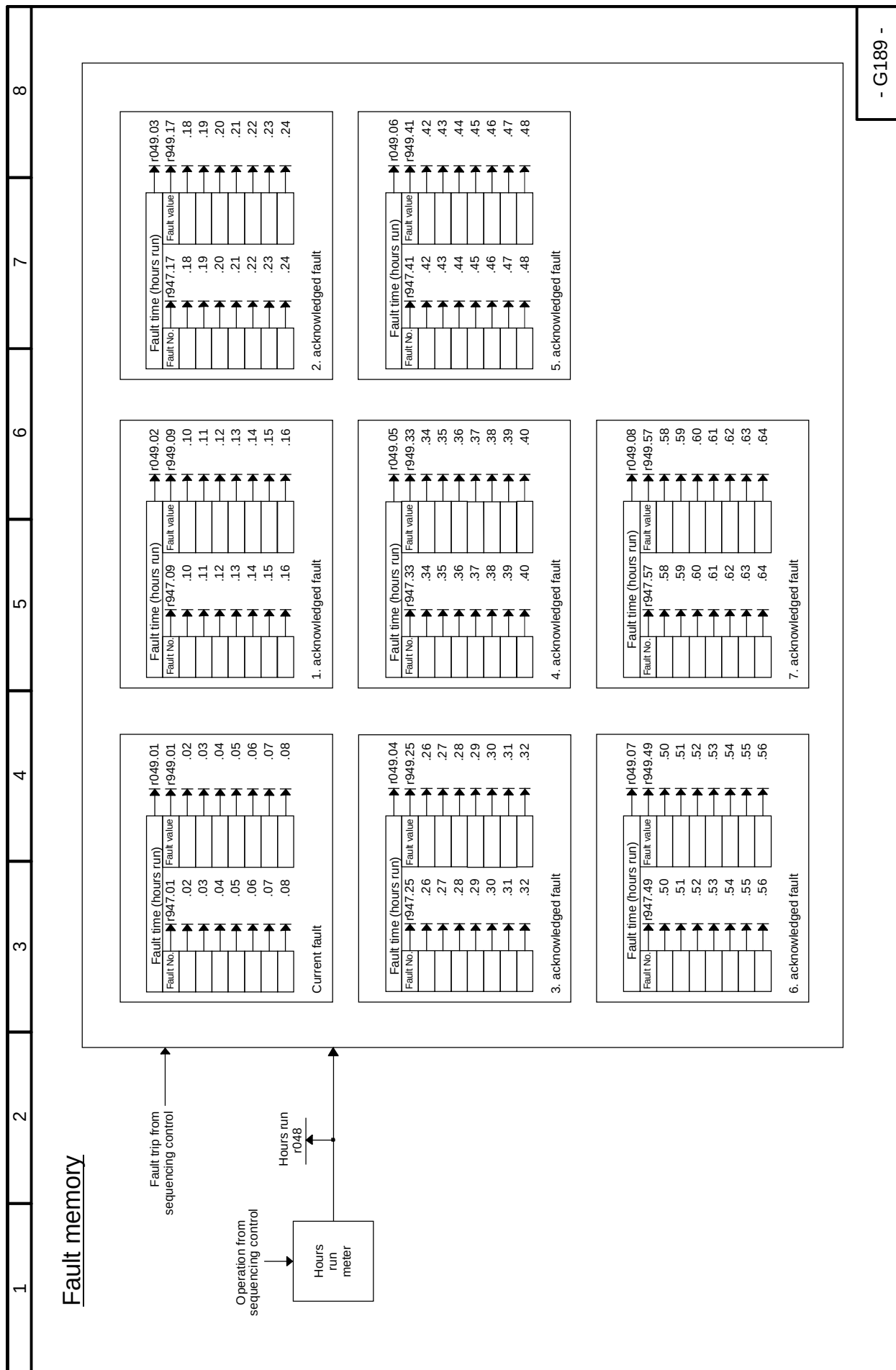


- G187 -

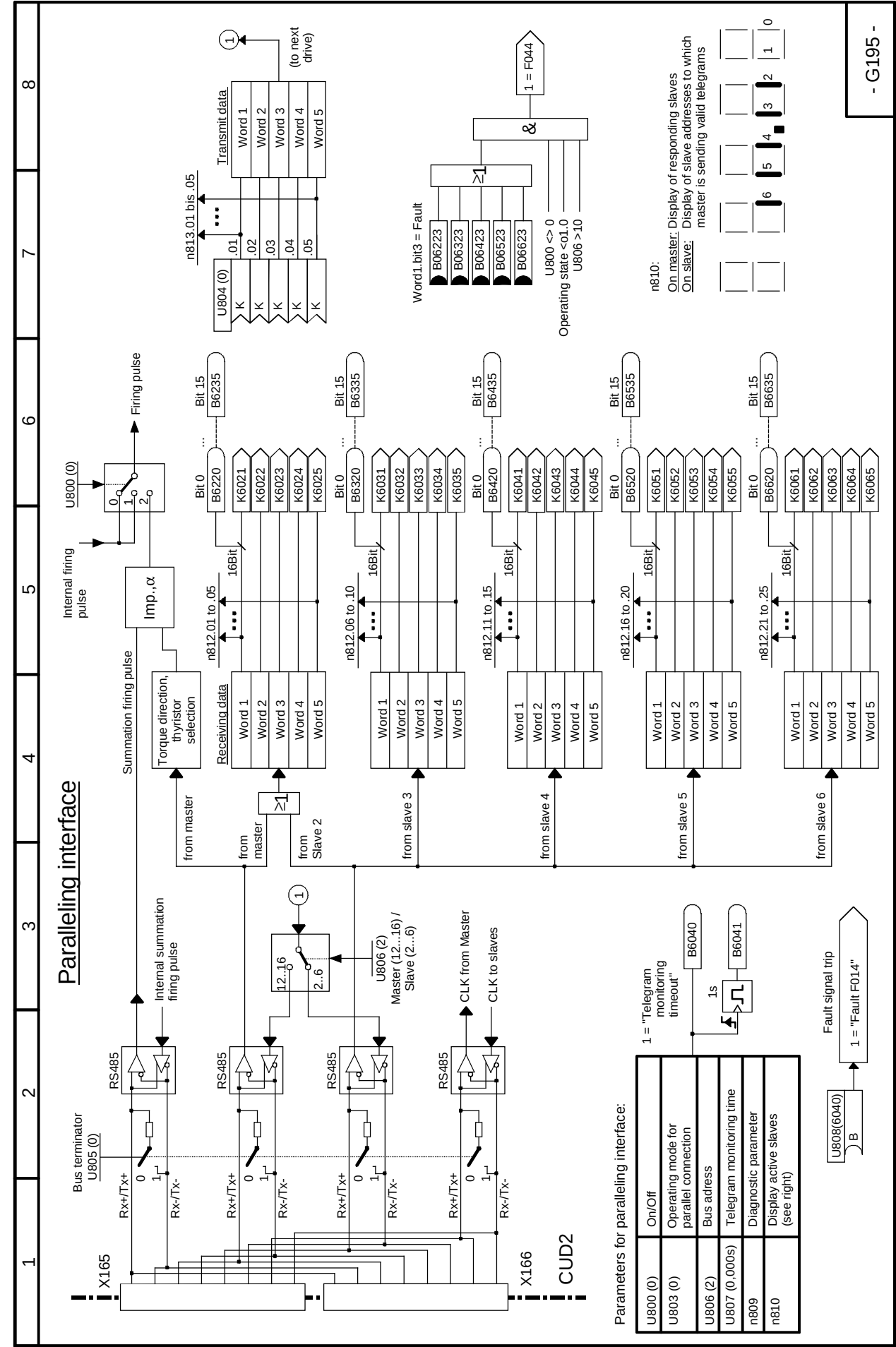


- G188 -

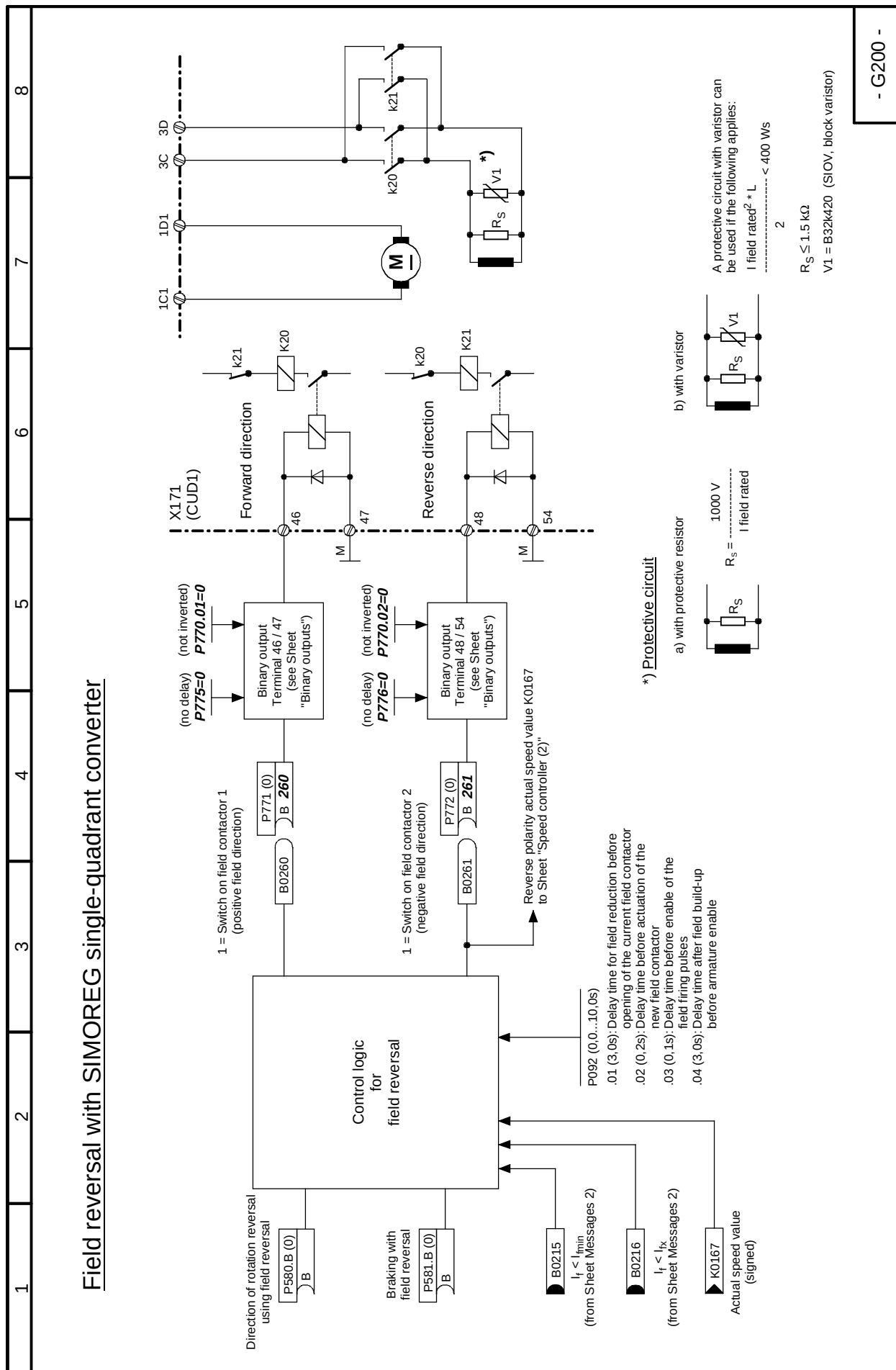
Sheet G189 Fault memory



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Sheet G200 Field reversal with SIMOREG single-quadrant device



Free function blocks Sheets B100 to B216

Technology software in the basic converter, S00 option

NOTE

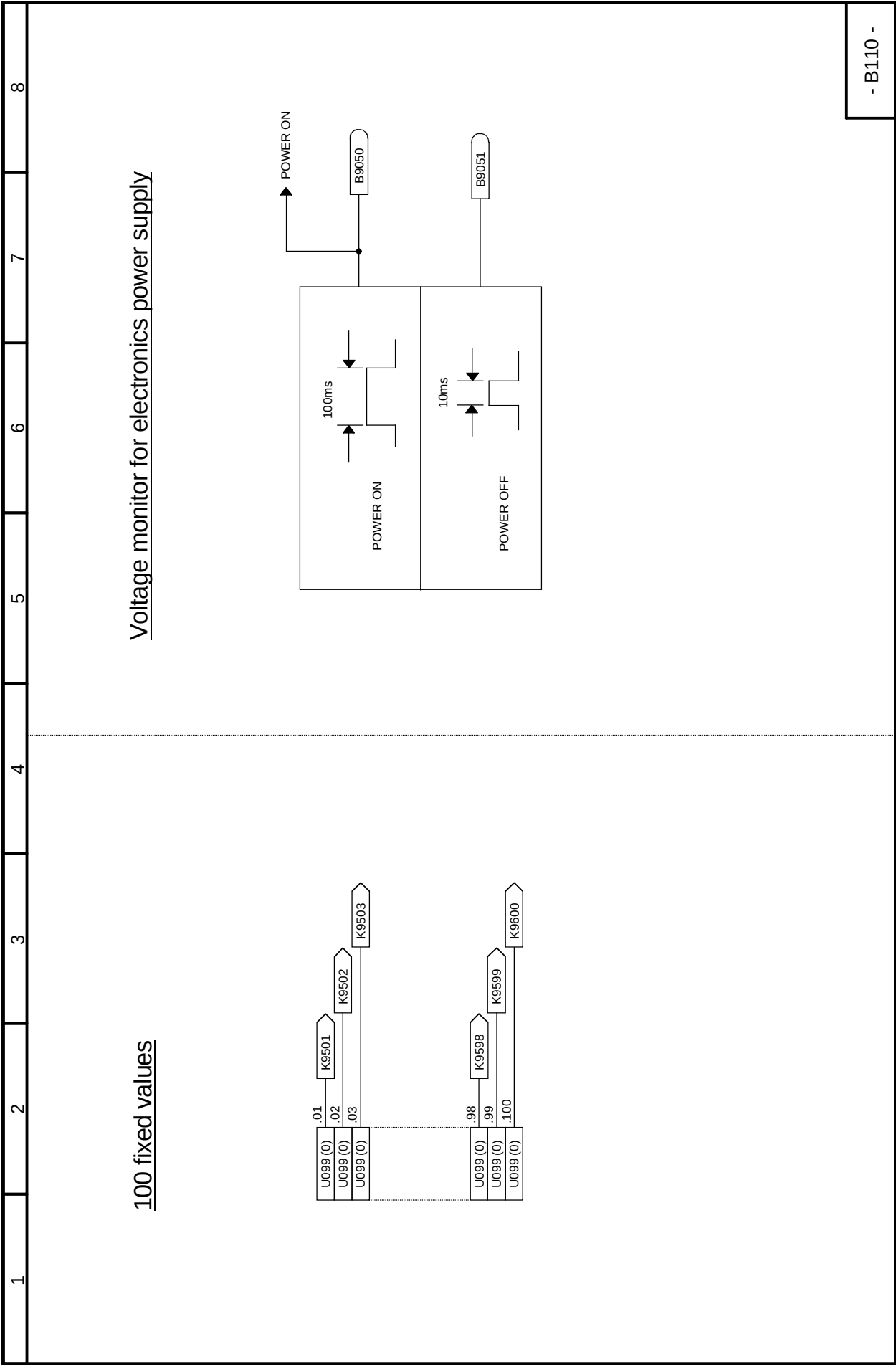
Freely assignable function blocks are enabled in parameter U977.
For enabling instructions, please refer to Section 11, Parameter List, description of parameters U977 and n978.

The setting for the sequence in which these function blocks are executed is made using parameters U960, U961, U962, and U963.

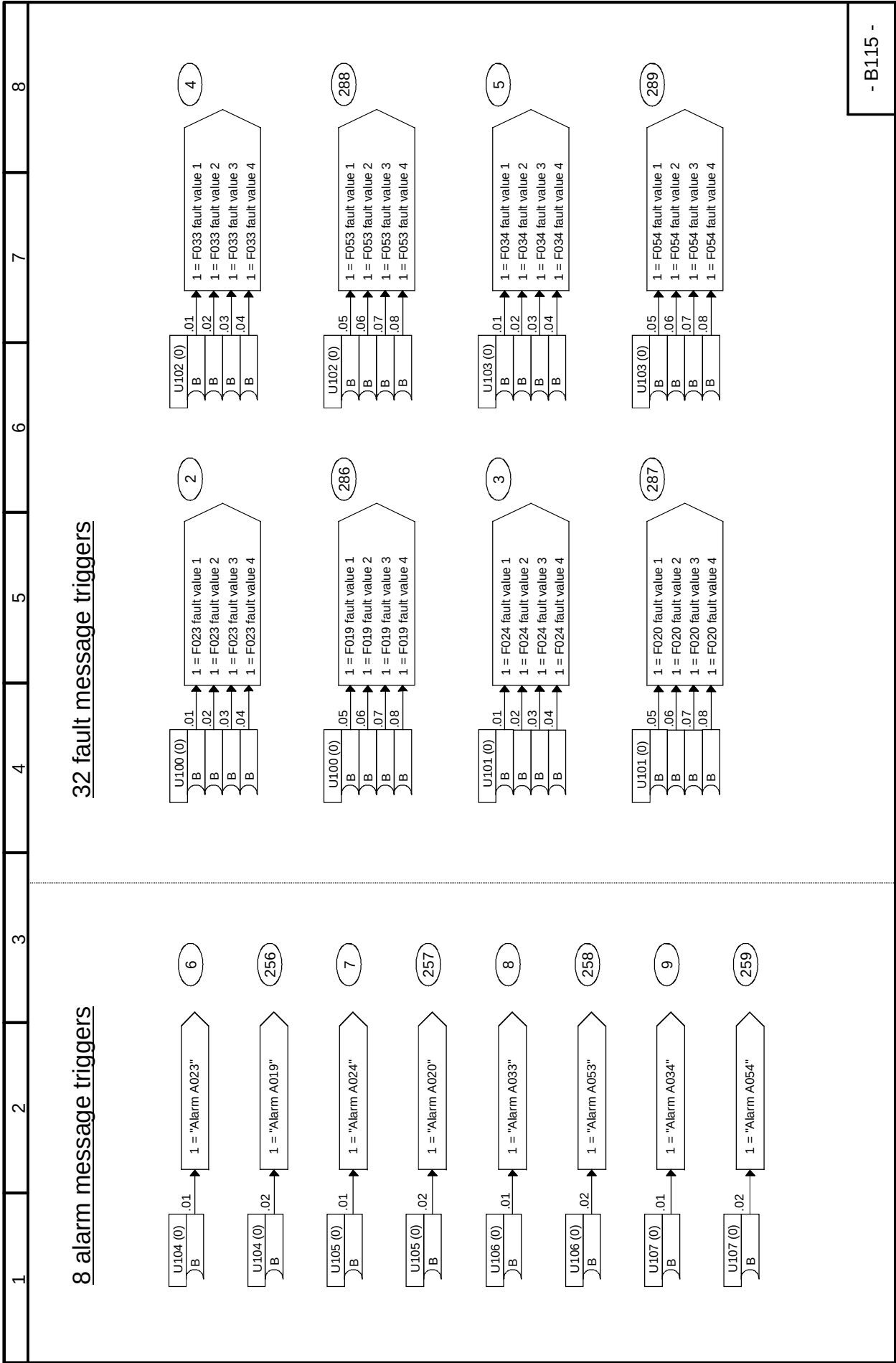
Function diagram SIMOREG 6RA70 - Contents of the technology software in the basic converter, option S00

Content	Sheet	Content	Sheet
Startup of the technology software (option S00)	B101	Control elements	
Fixed values		3 Integrators	B155
100 Fixed values	B110	3 DT1 elements	B155
Monitoring		10 Derivative/delay elements (LEAD / LAG blocks)	B156 - B158
1 Voltage monitor for electronics power supply	B110	Characteristics	
Alarm, fault messages		9 Characteristic blocks	B160
8 Alarm message triggers	B115	3 Dead zones	B161
32 Fault message triggers	B115	1 Setpoint branching	B161
Connector/binector converter		Ramp function generator	
3 Connector/binector converter	B120	1 Simple ramp function generator	B165
3 Binector/connector converter	B121	Controllers	
Mathematical functions		1 Technology controller	B170
15 Adders/subtractors	B125	10 PI controllers	B180 - B189
4 Sign inverters	B125	Velocity/speed controller, variable moment of inertia	
2 Switchable sign inverters	B125	1 Velocity/speed calculator	B190
12 Multipliers	B130	1 Speed/velocity calculator	B190
6 Dividers	B131	1 Calculation of variable inertia	B191
3 High-resolution multipliers/dividers	B131	Multiplexer for connectors	
4 Absolute-value generator with filtering	B135	3 Multiplexers	B195
Limiters, limit-value monitors		Logic functions	
3 Limiters	B135	2 Decoders/demultiplexers binary to 1 from 8	B200
3 Limit-value monitors with filtering	B136	28 AND elements with 3 inputs each	B205
4 Limit-value monitors without filtering	B137	20 OR elements with 3 inputs each	B206
3 Limit-value monitors without filtering	B138	4 EXCLUSIVE OR elements with 2 inputs each	B206
Processing of connectors		16 Inverters	B207
4 Averagers	B139	12 NAND elements with 3 inputs each	B207
4 Maximum selections	B140	14 RS flipflop	B210
4 Minimum selections	B140	4 D flipflop	B211
2 Tracking/storage elements	B145	10 Timers	B215, B216
2 Connector memories	B145	5 Binary signal selector switches	B216
10 Connector changeover switches	B150		

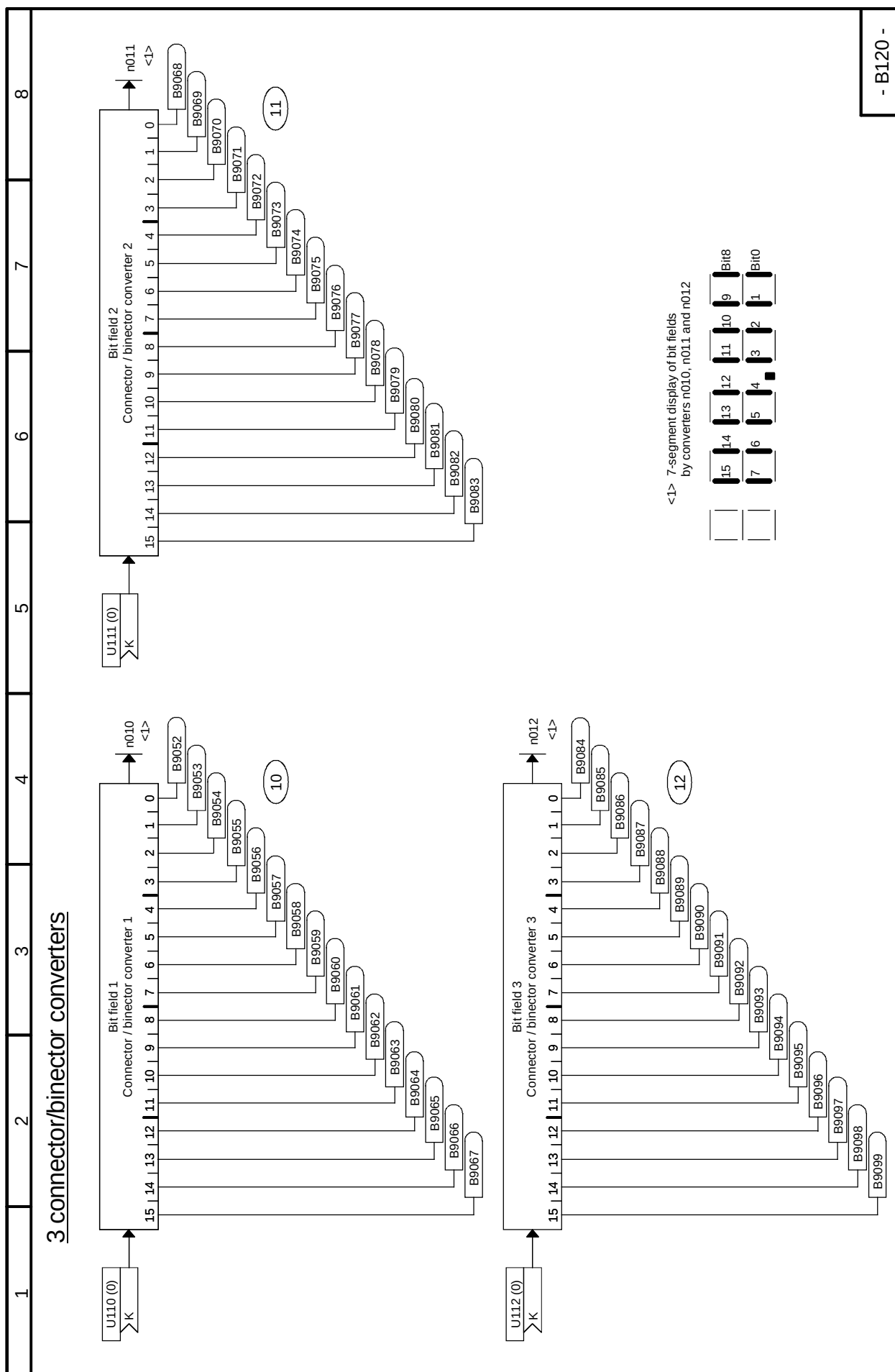
[illegible]

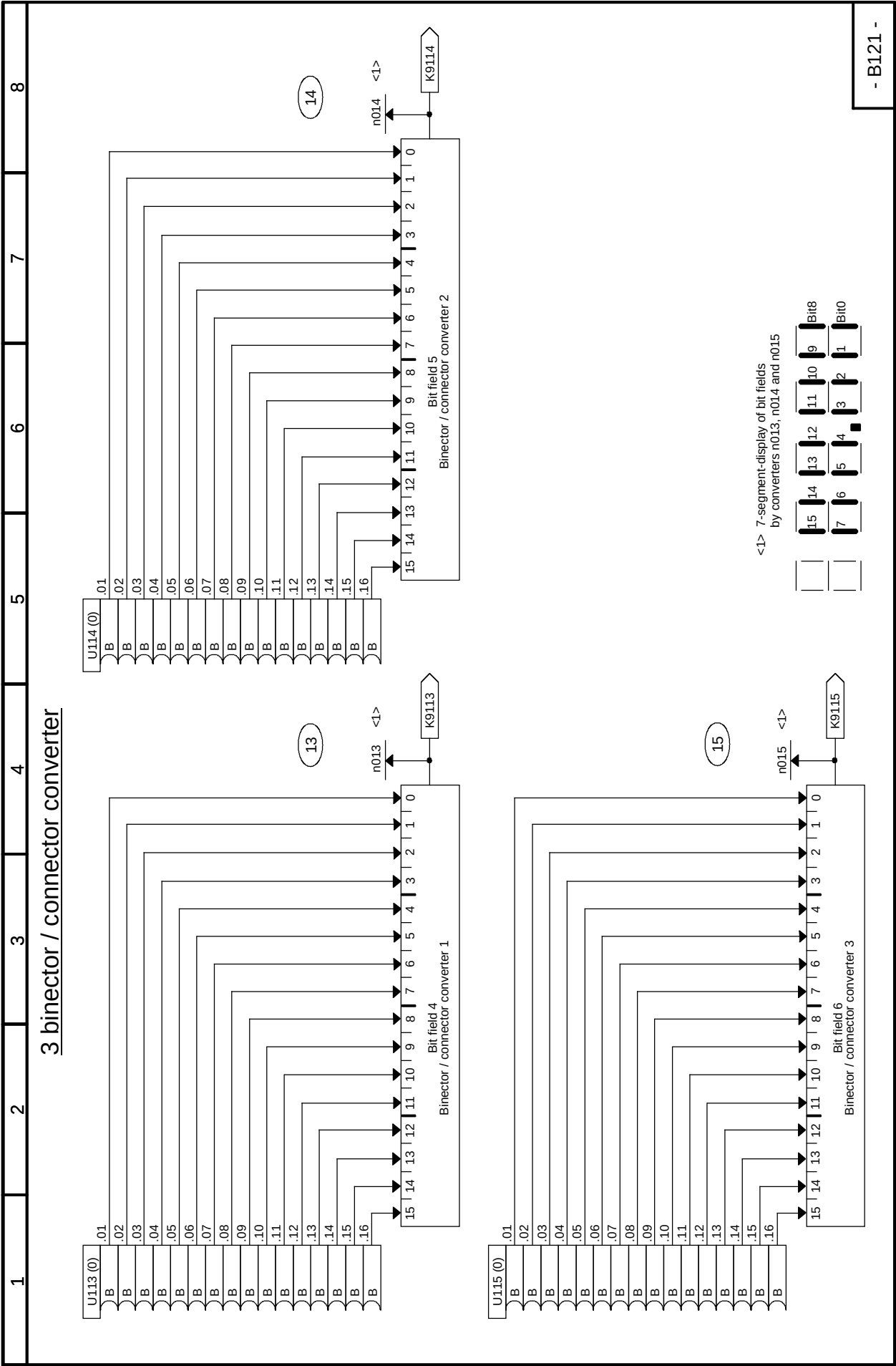


Sheet B115 Fault message triggers, alarm message triggers

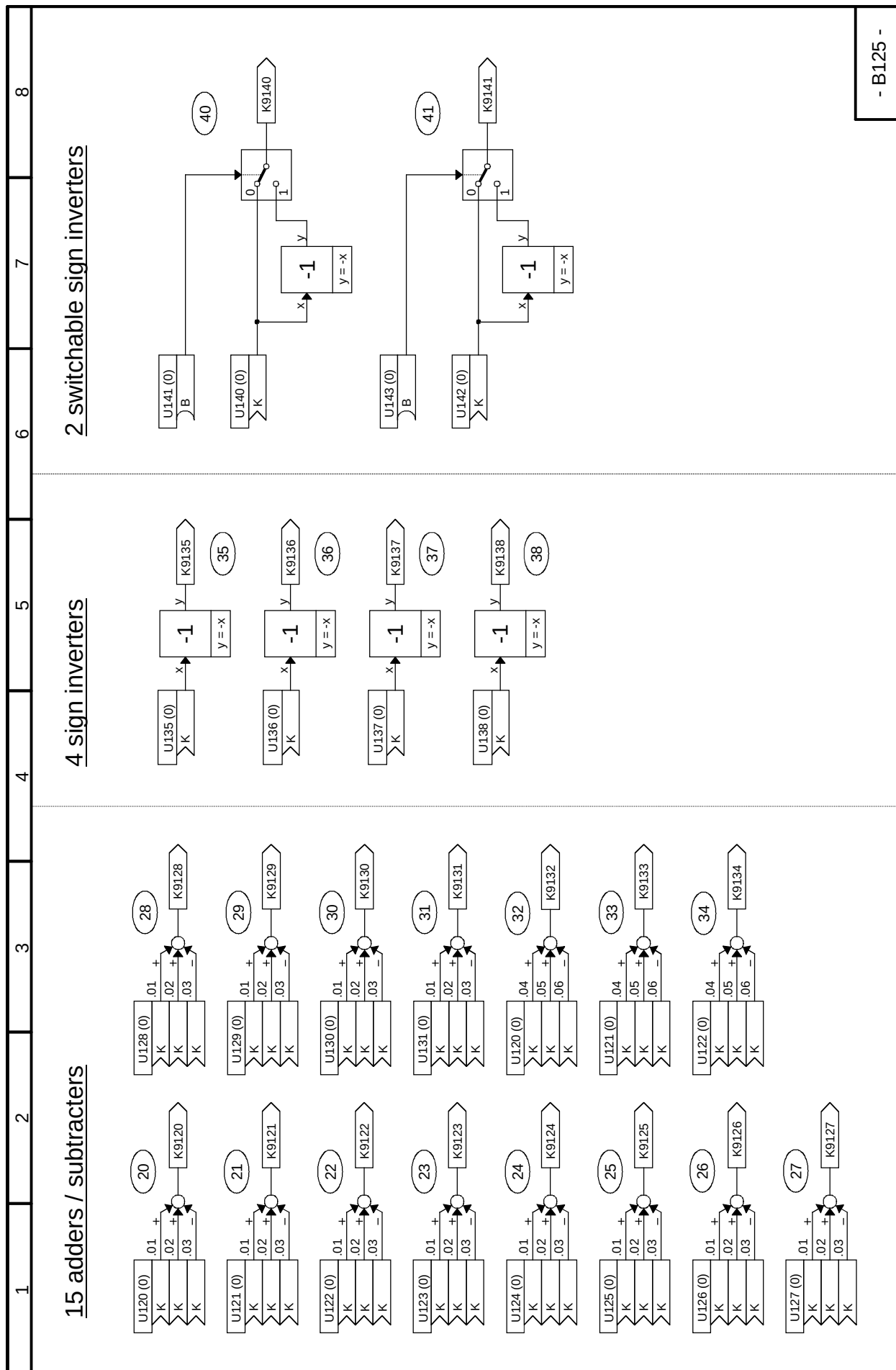


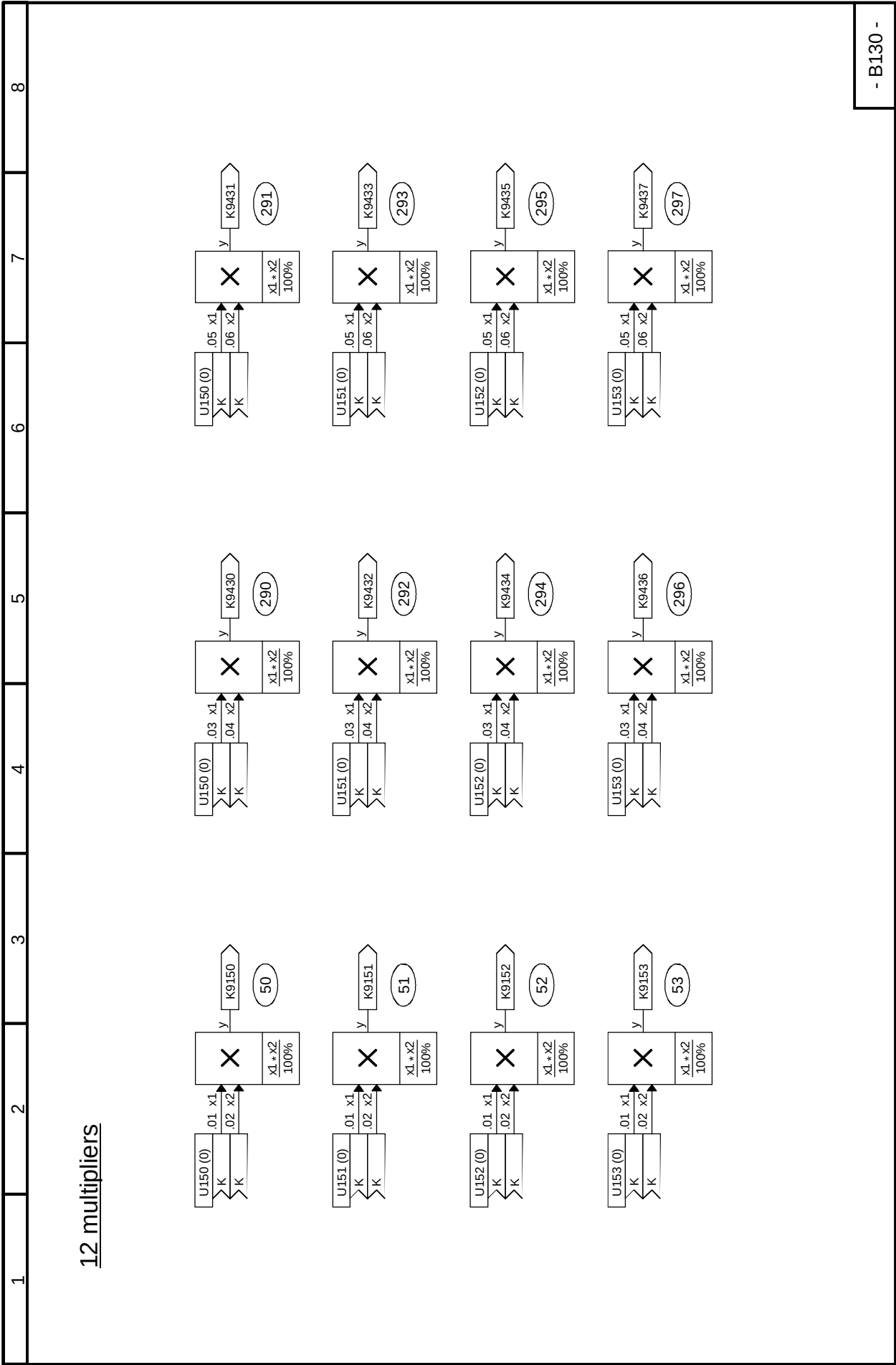
Sheet B120 Connector / binector converters



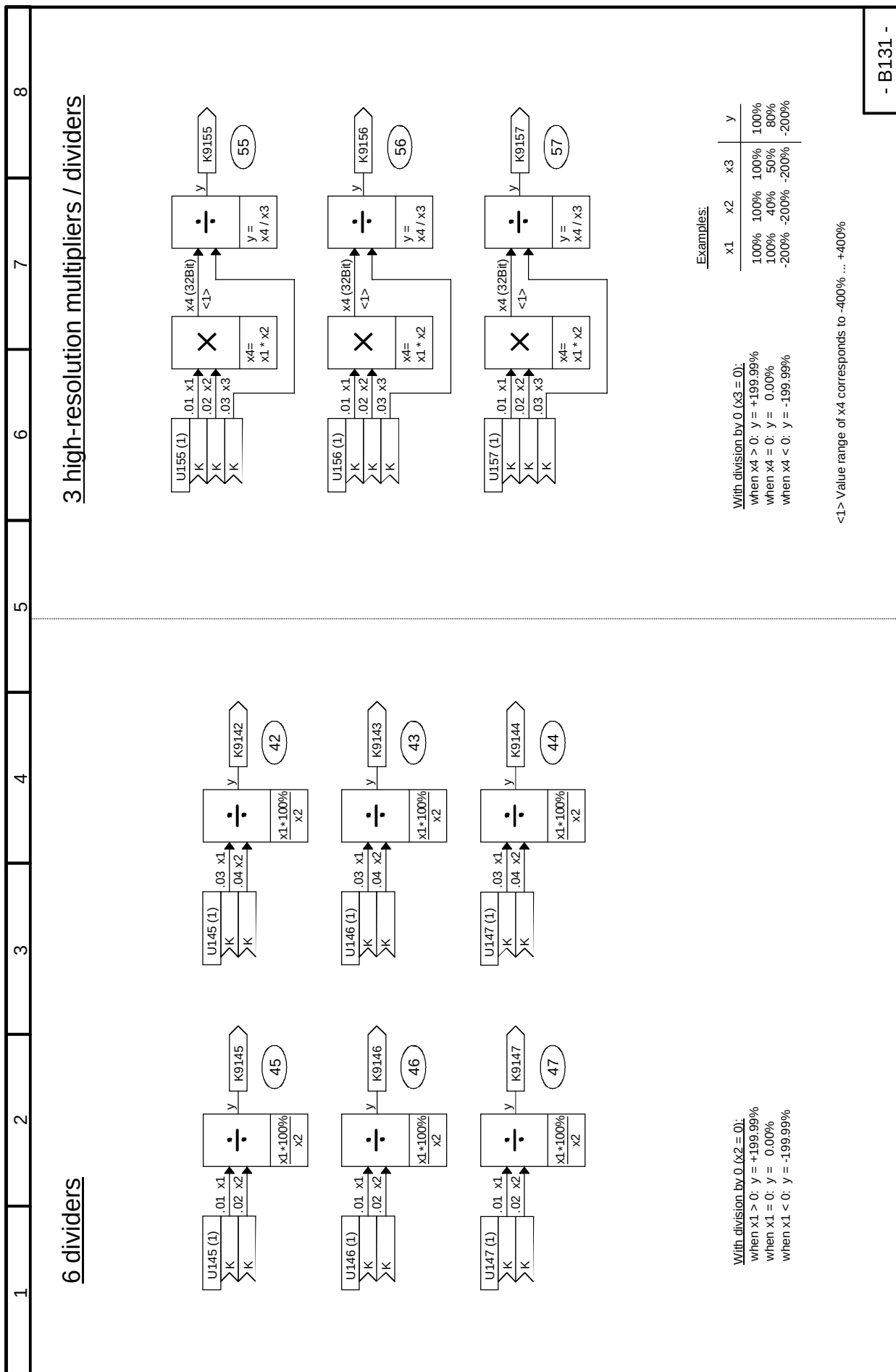


Sheet B125 Adders / subtracters, sign inverters





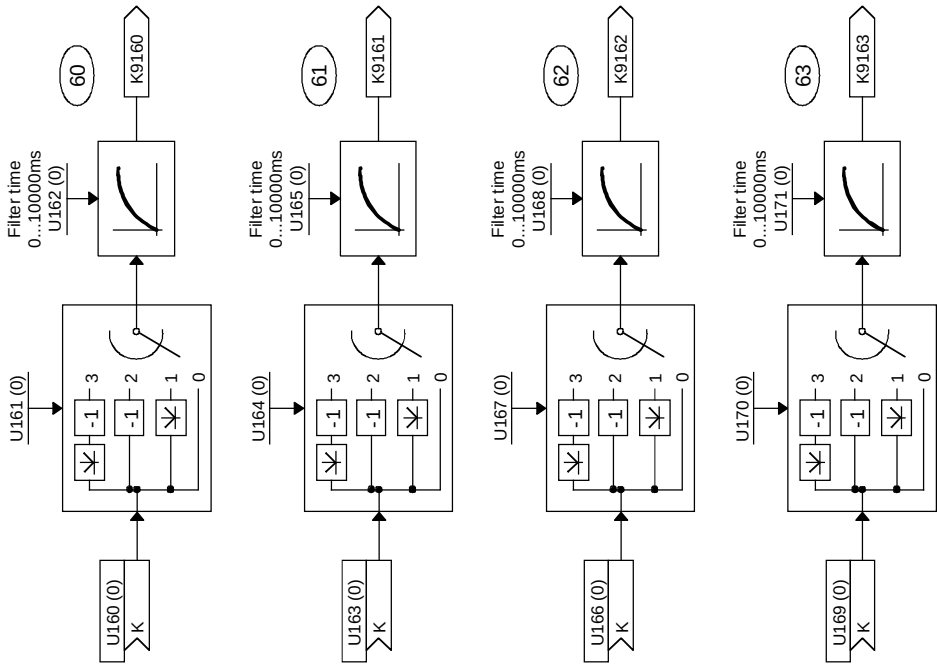
Sheet B131 Dividers, High-resolution multipliers / dividers



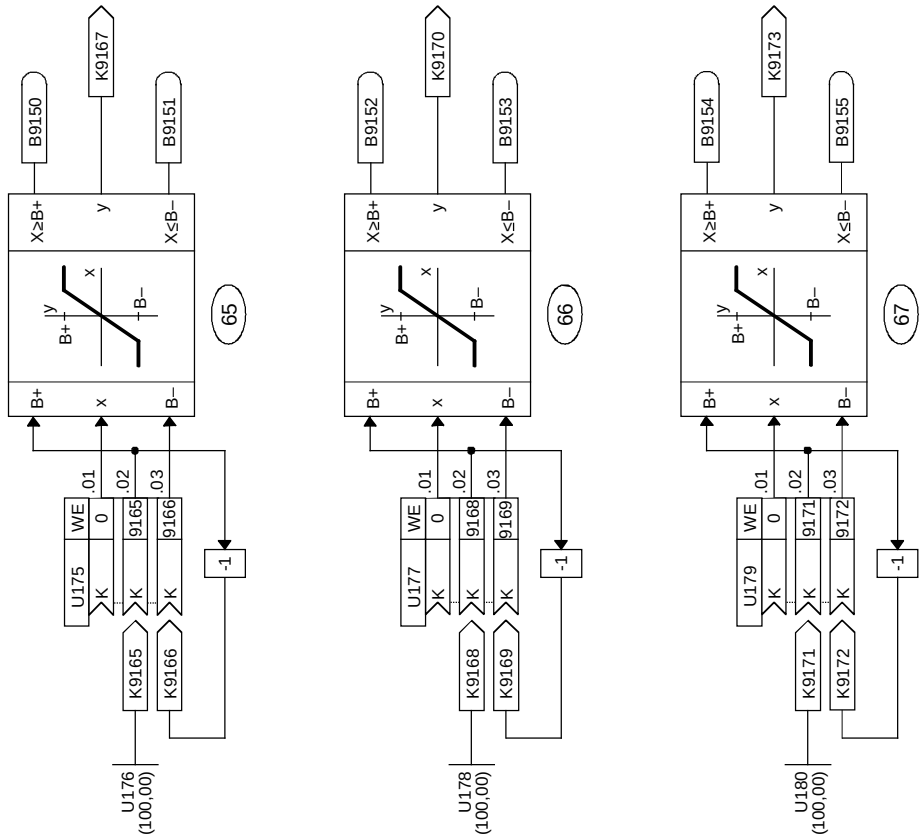
Sheet B135 Absolute-value generators with filter, limiters

- B135 -

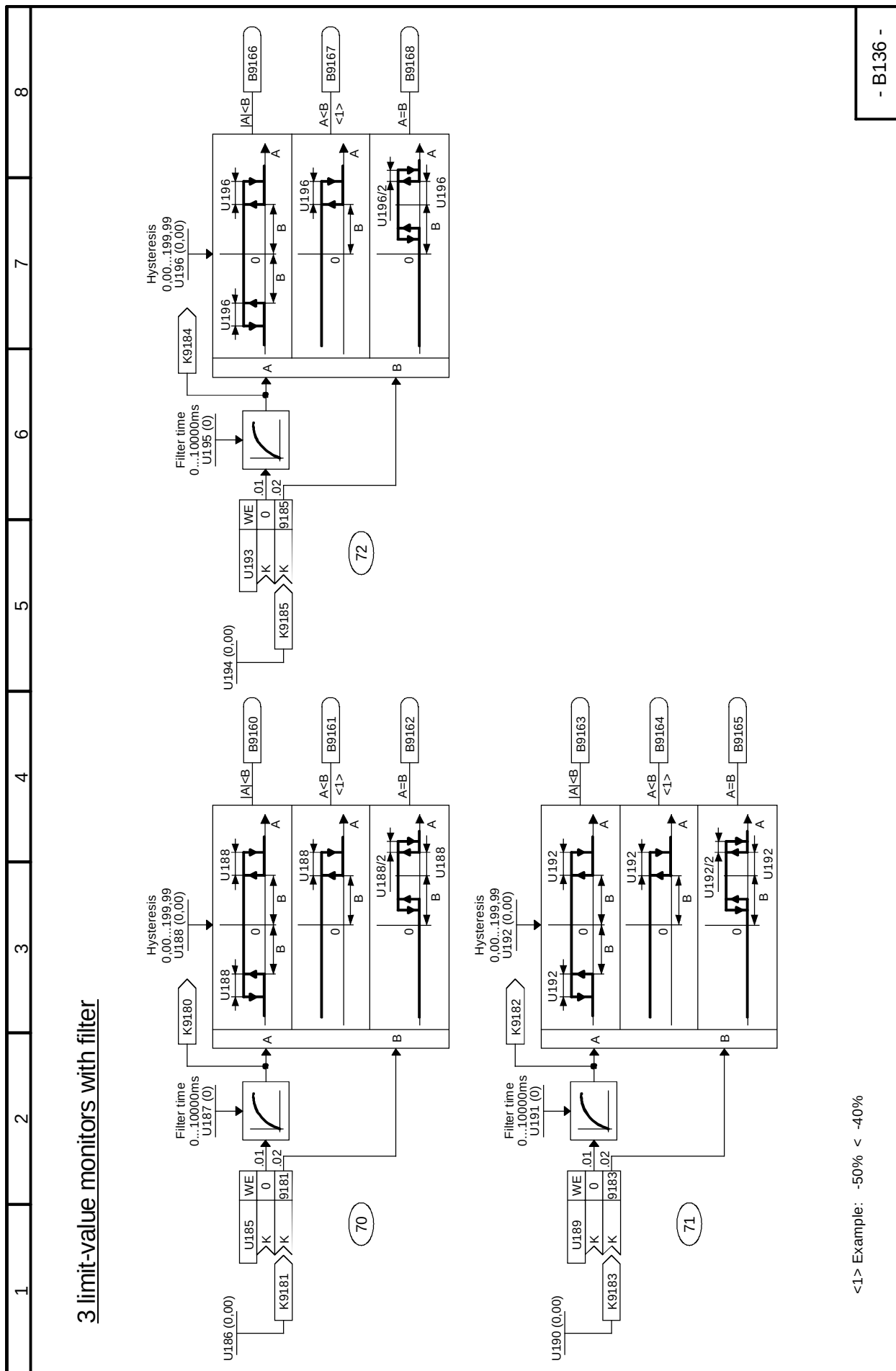
4 absolute-value generators with filter



3 limiters

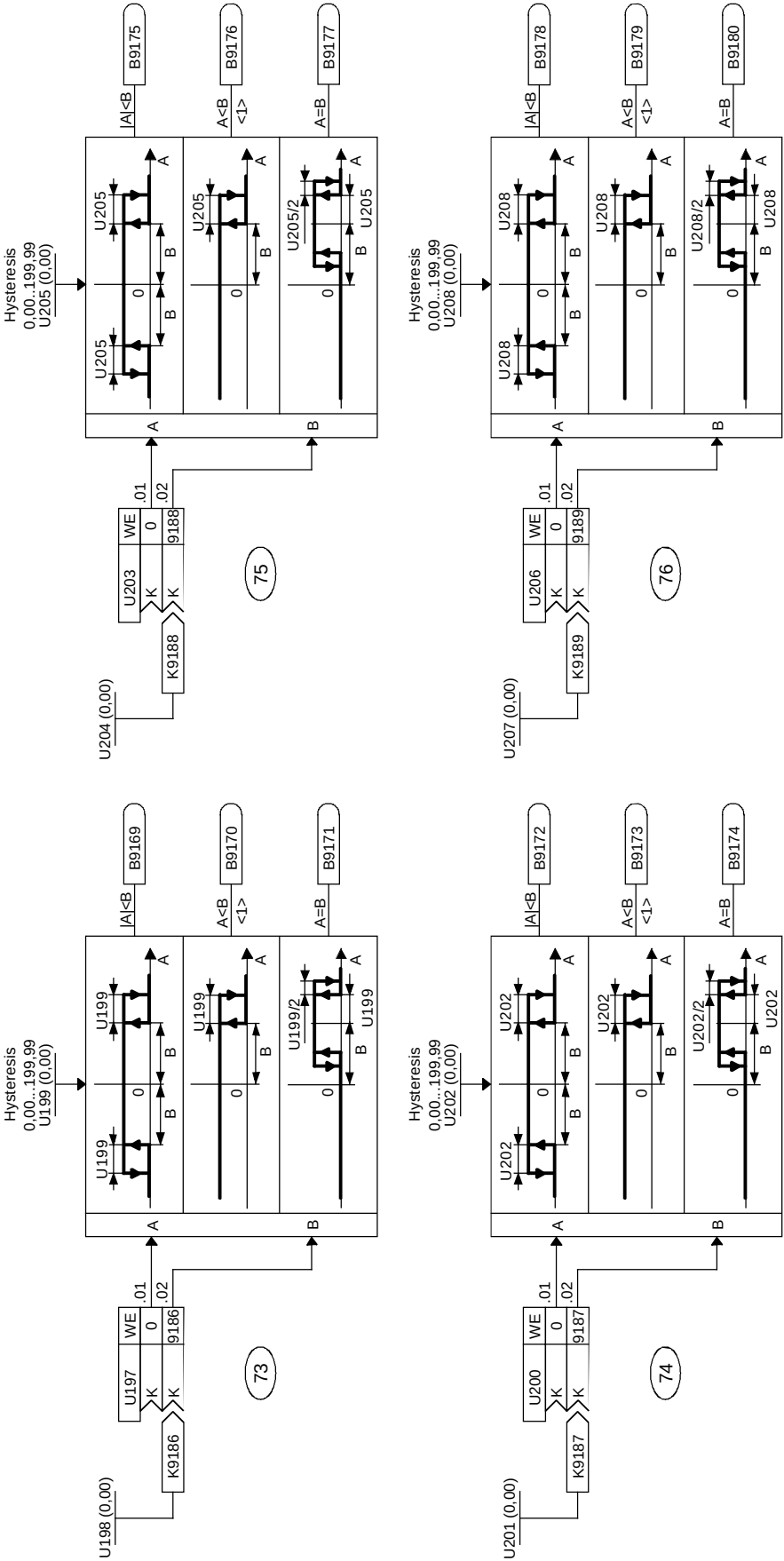


Sheet B136 Limit-value monitors with filter



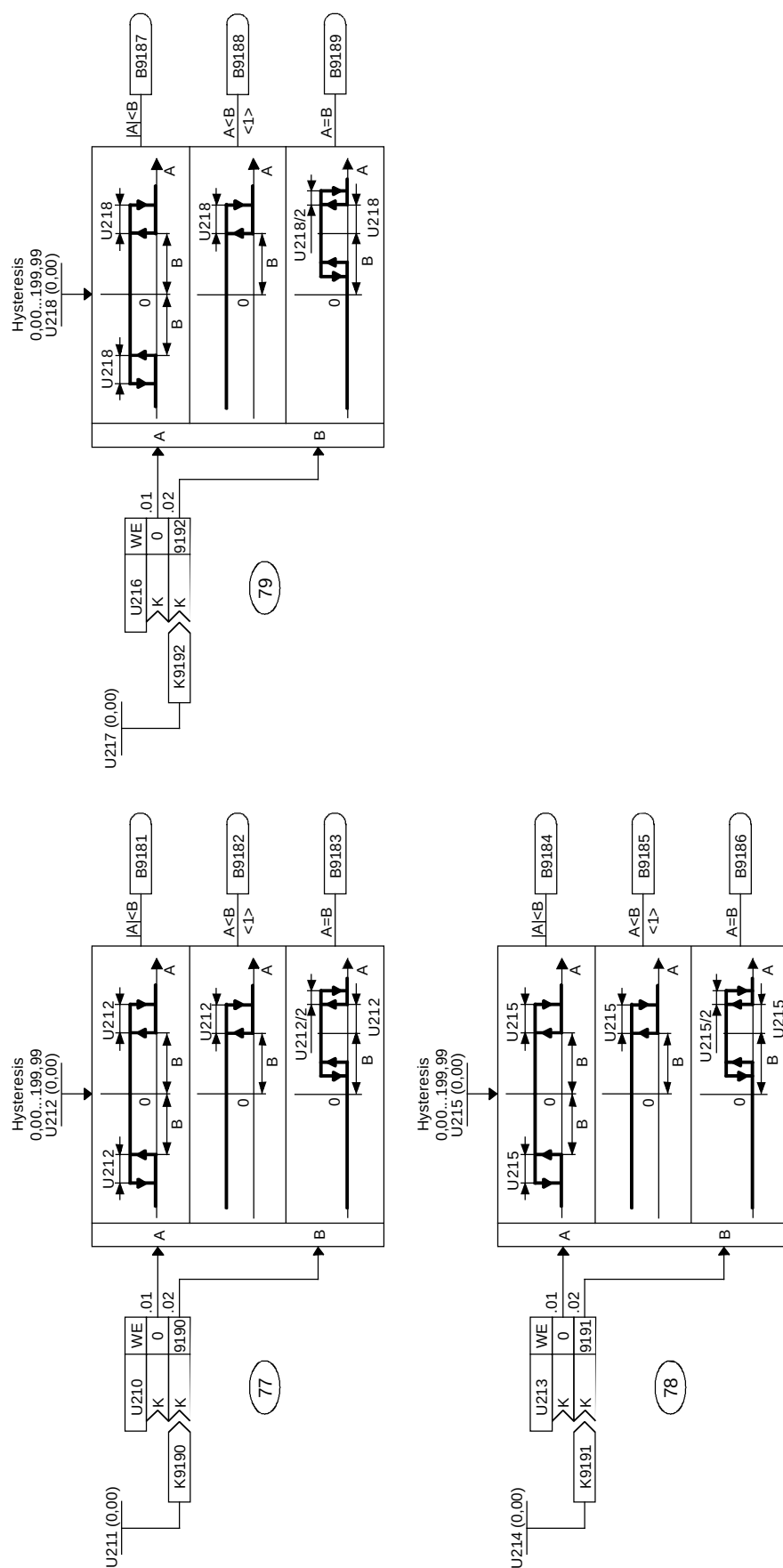
<1> Example: -50% < -40%

4 limit-value monitors without filter



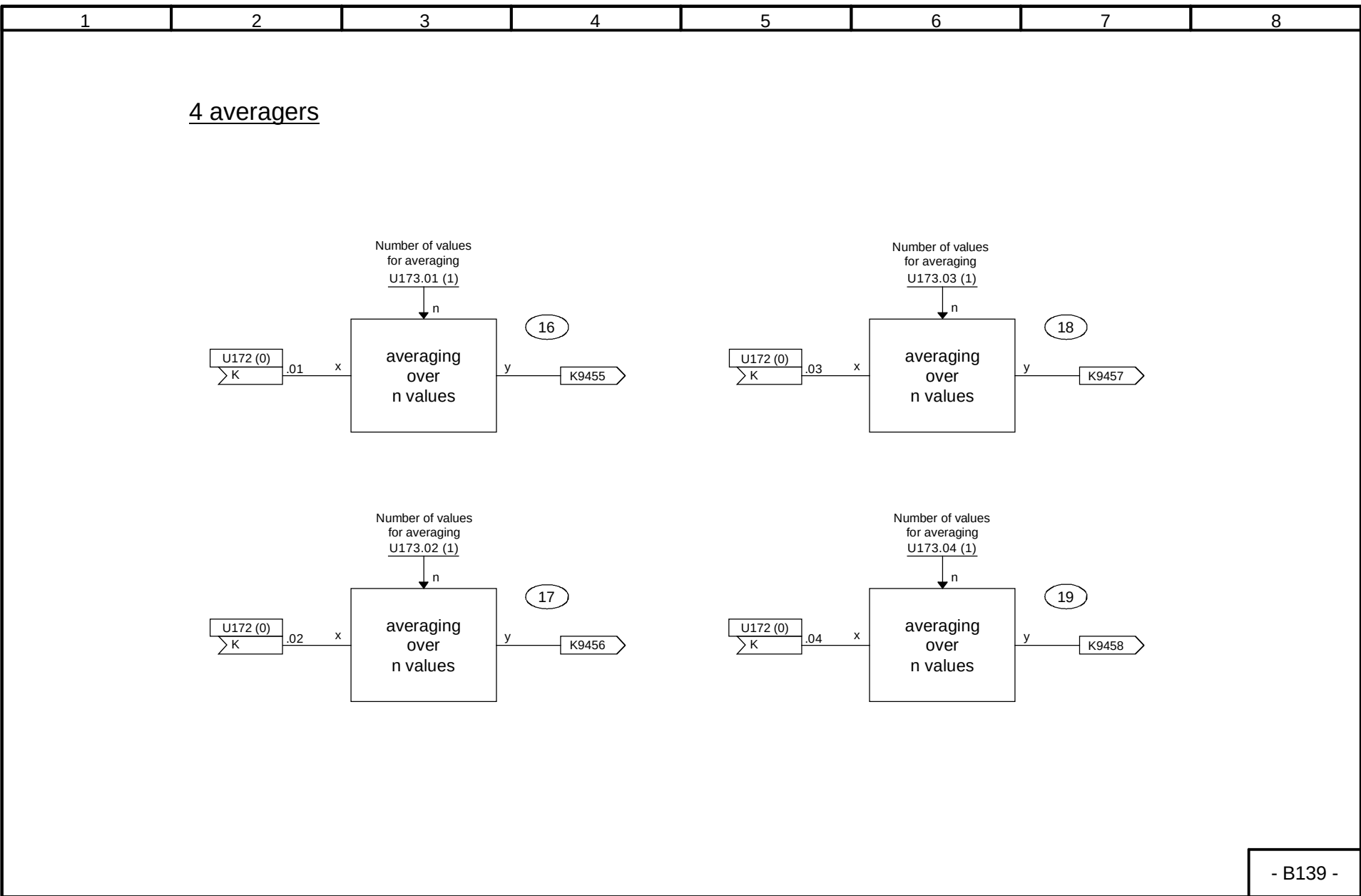
<1> Example: -50% < -40%

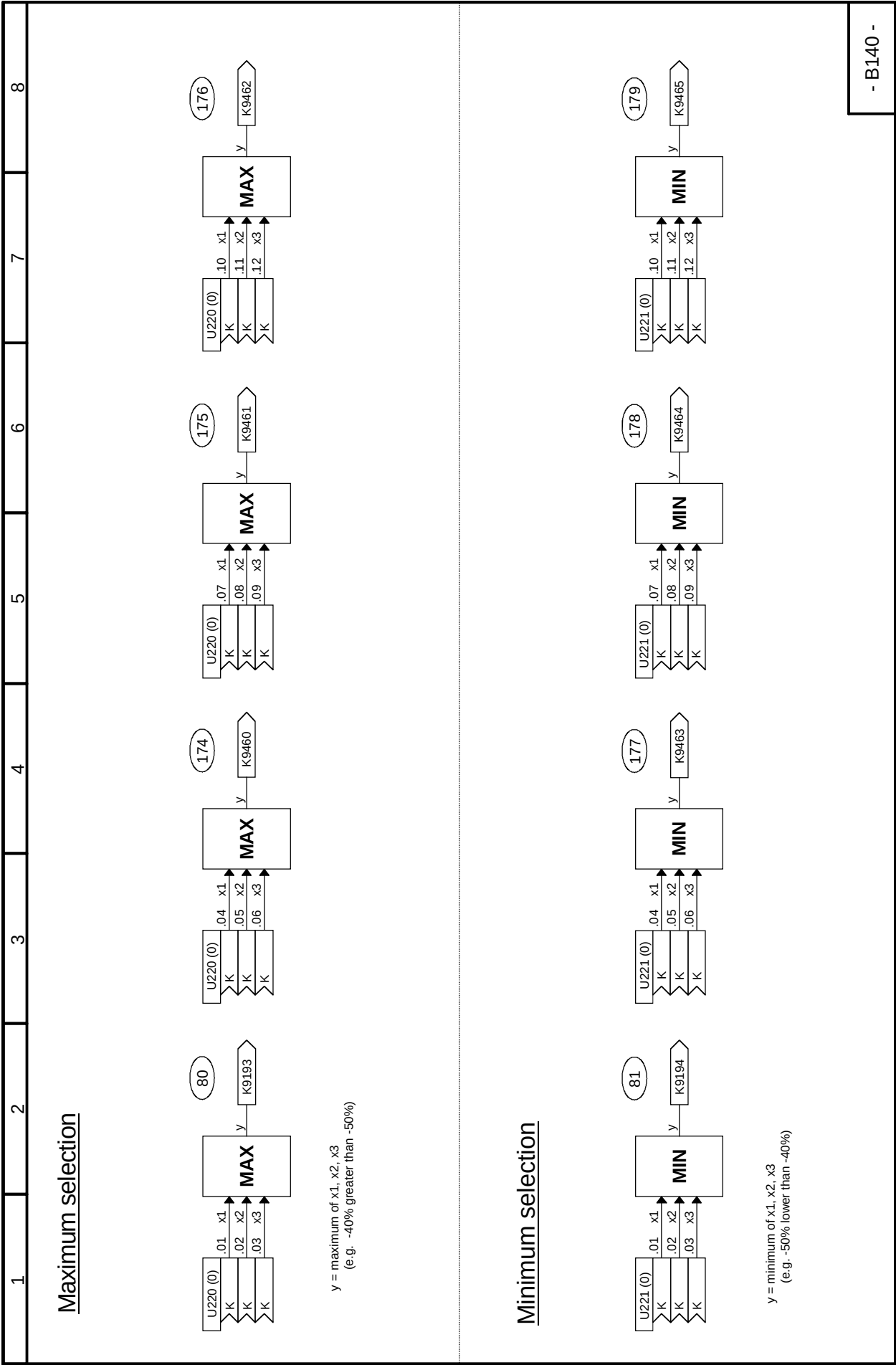
3 limit-value monitors without filter



<1> Example: -50% < -40%

- B138 -

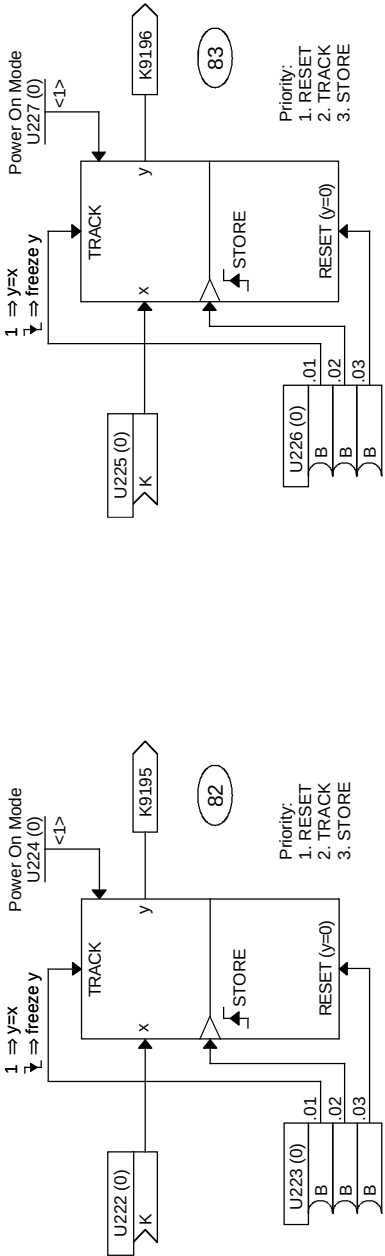




y = minimum of x1, x2, x3
(e.g. -50% lower than -40%)

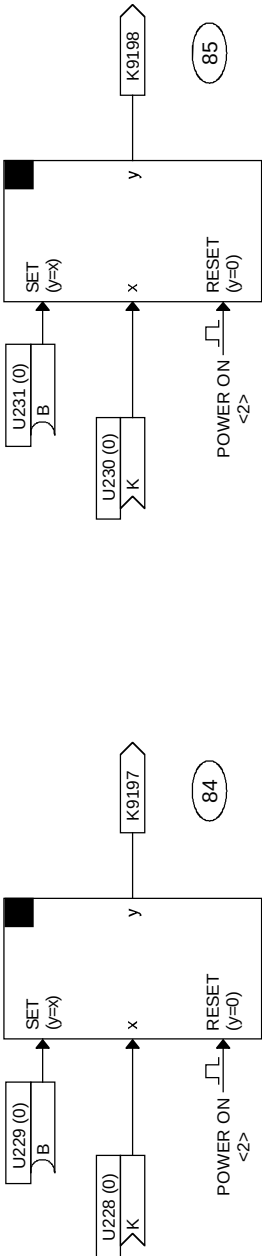
- B140 -

2 tracking / storage elements



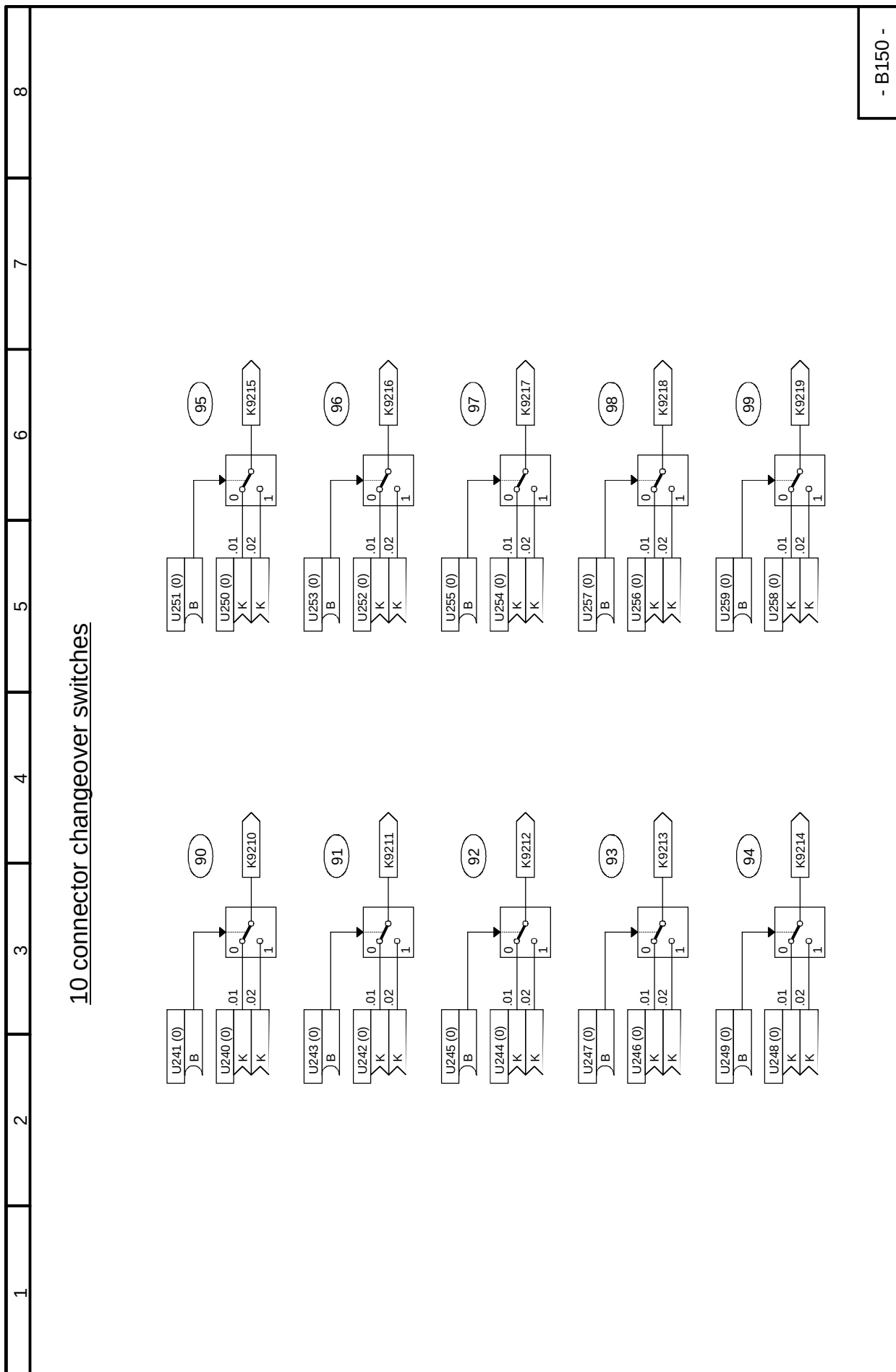
<1> Power On Mode: U224/U227=0: No "non-volatile" storage: Zero appears at output when voltage recovers
U224/U227=1: "Non-volatile" storage: When power is disconnected or fails, the current output value is stored and output again when voltage is reconnected/recovers.

2 connector-memories



<2> from voltage monitor for electronics power supply

Sheet B150 Connector changeover switches



- B150 -

1	2	3	4	5	6	7	8
3 integrators U260 (0) >K x y x t Tn Integral-action time (Tn) (10...65000ms) U261 (10) Stop .01 integrator .02 Set integrator Setting value U263 (0) >K 1 0 y K9220 100 U264 (0) >K x y x t Tn Integral-action time (Tn) (10...65000ms) U265 (10) Stop .01 integrator .02 Set integrator Setting value U267 (0) >K 1 0 y K9221 101 U268 (0) >K x y x t Tn Integral-action time (Tn) (10...65000ms) U269 (10) Stop .01 integrator .02 Set integrator Setting value U271 (0) >K 1 0 y K9222 102							
3 DT1 elements (transfer function: $G(s) = Tv \cdot \frac{s}{1 + s T1}$) U272 (0) >K y y y t Derivative action time (Tv) (0...1000ms) U273 (0) Filter time (T1) (0...1000ms) U274 (0) 1 0 y K9223 -1 K9224 103 U275 (0) >K y y y t Derivative action time (Tv) (0...1000ms) U276 (0) Filter time (T1) (0...1000ms) U277 (0) 1 0 y K9225 -1 K9226 104 U278 (0) >K y y y t Derivative action time (Tv) (0...1000ms) U279 (0) Filter time (T1) (0...1000ms) U280 (0) 1 0 y K9227 -1 K9228 105							
- B155 -							

3 DT1 elements

U272 (0)

>K

y

y

x

t

Derivative action
time (Tv)
(0...1000ms)
U273 (0)

Filter time (T1)
(0...1000ms)
U274 (0)

1

0

y

K9223

103

U275 (0)

>K

y

y

x

t

Derivative action
time (Tv)
(0...1000ms)
U276 (0)

Filter time (T1)
(0...1000ms)
U277 (0)

1

0

y

K9225

104

U278 (0)

>K

y

y

x

t

Derivative action
time (Tv)
(0...1000ms)
U279 (0)

Filter time (T1)
(0...1000ms)
U280 (0)

1

0

y

K9227

105

U272 (0)

>K

y

y

x

t

Derivative action
time (Tv)
(0...1000ms)
U273 (0)

Filter time (T1)
(0...1000ms)
U274 (0)

1

0

y

K9223

103

U275 (0)

>K

y

y

x

t

Derivative action
time (Tv)
(0...1000ms)
U276 (0)

Filter time (T1)
(0...1000ms)
U277 (0)

1

0

y

K9225

104

U278 (0)

>K

y

y

x

t

Derivative action
time (Tv)
(0...1000ms)
U279 (0)

Filter time (T1)
(0...1000ms)
U280 (0)

1

0

y

K9227

105

U272 (0)

>K

y

y

x

t

Derivative action
time (Tv)
(0...1000ms)
U273 (0)

Filter time (T1)
(0...1000ms)
U274 (0)

1

0

y

K9223

103

U275 (0)

>K

y

y

x

t

Derivative action
time (Tv)
(0...1000ms)
U276 (0)

Filter time (T1)
(0...1000ms)
U277 (0)

1

0

y

K9225

104

U278 (0)

>K

y

y

x

t

Derivative action
time (Tv)
(0...1000ms)
U279 (0)

Filter time (T1)
(0...1000ms)
U280 (0)

1

0

y

K9227

105

U272 (0)

>K

y

y

x

t

Derivative action
time (Tv)
(0...1000ms)
U273 (0)

Filter time (T1)
(0...1000ms)
U274 (0)

1

0

y

K9223

103

U275 (0)

>K

y

y

x

t

Derivative action
time (Tv)
(0...1000ms)
U276 (0)

Filter time (T1)
(0...1000ms)
U277 (0)

1

0

y

K9225

104

U278 (0)

>K

y

y

x

t

Derivative action
time (Tv)
(0...1000ms)
U279 (0)

Filter time (T1)
(0...1000ms)
U280 (0)

1

0

y

K9227

105

U272 (0)

>K

y

y

x

t

Derivative action
time (Tv)
(0...1000ms)
U273 (0)

Filter time (T1)
(0...1000ms)
U274 (0)

1

0

y

K9223

103

U275 (0)

>K

y

y

x

t

Derivative action
time (Tv)
(0...1000ms)
U276 (0)

Filter time (T1)
(0...1000ms)
U277 (0)

1

0

y

K9225

104

U278 (0)

>K

y

y

x

t

Derivative action
time (Tv)
(0...1000ms)
U279 (0)

Filter time (T1)
(0...1000ms)
U280 (0)

1

0

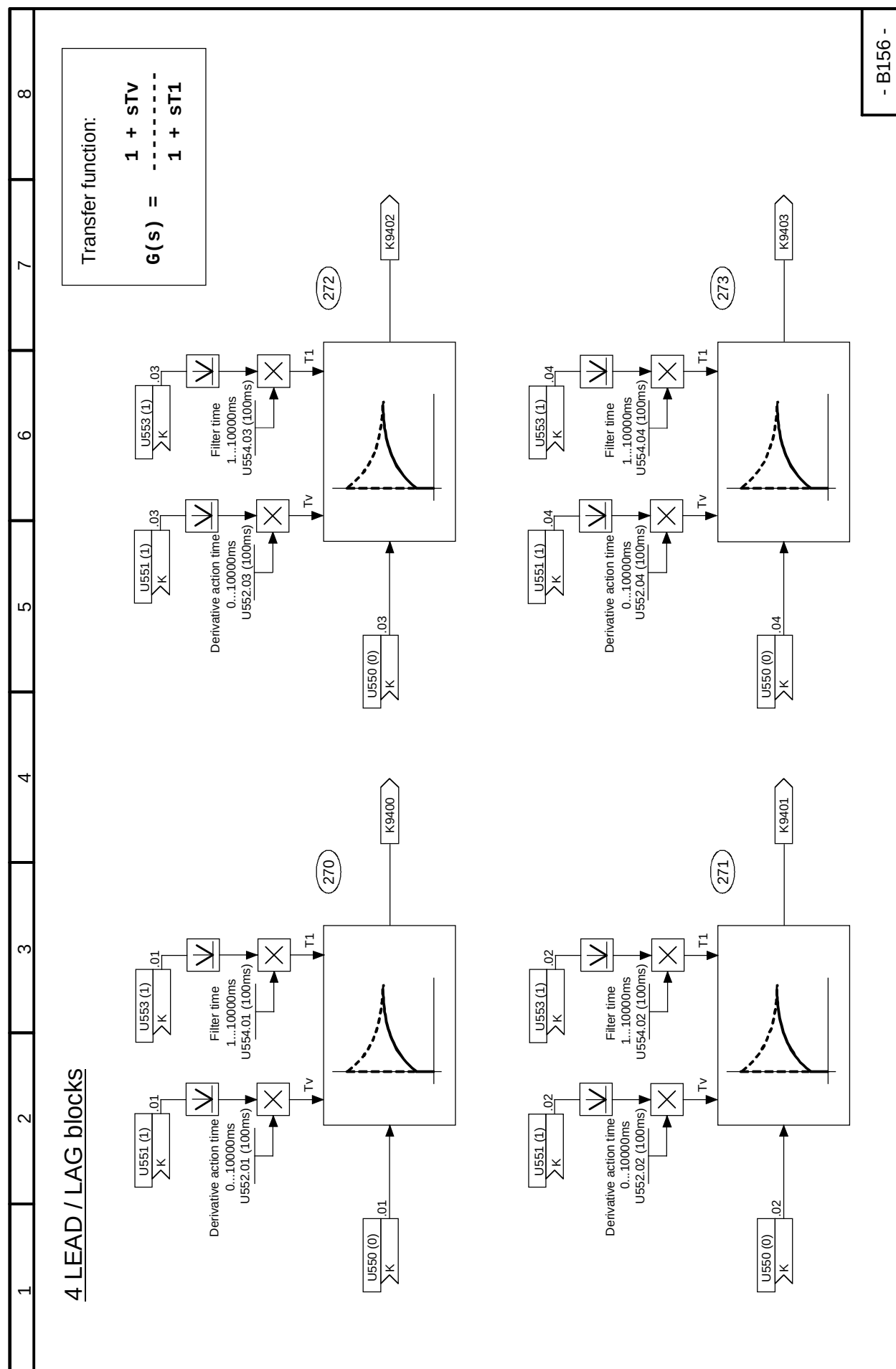
y

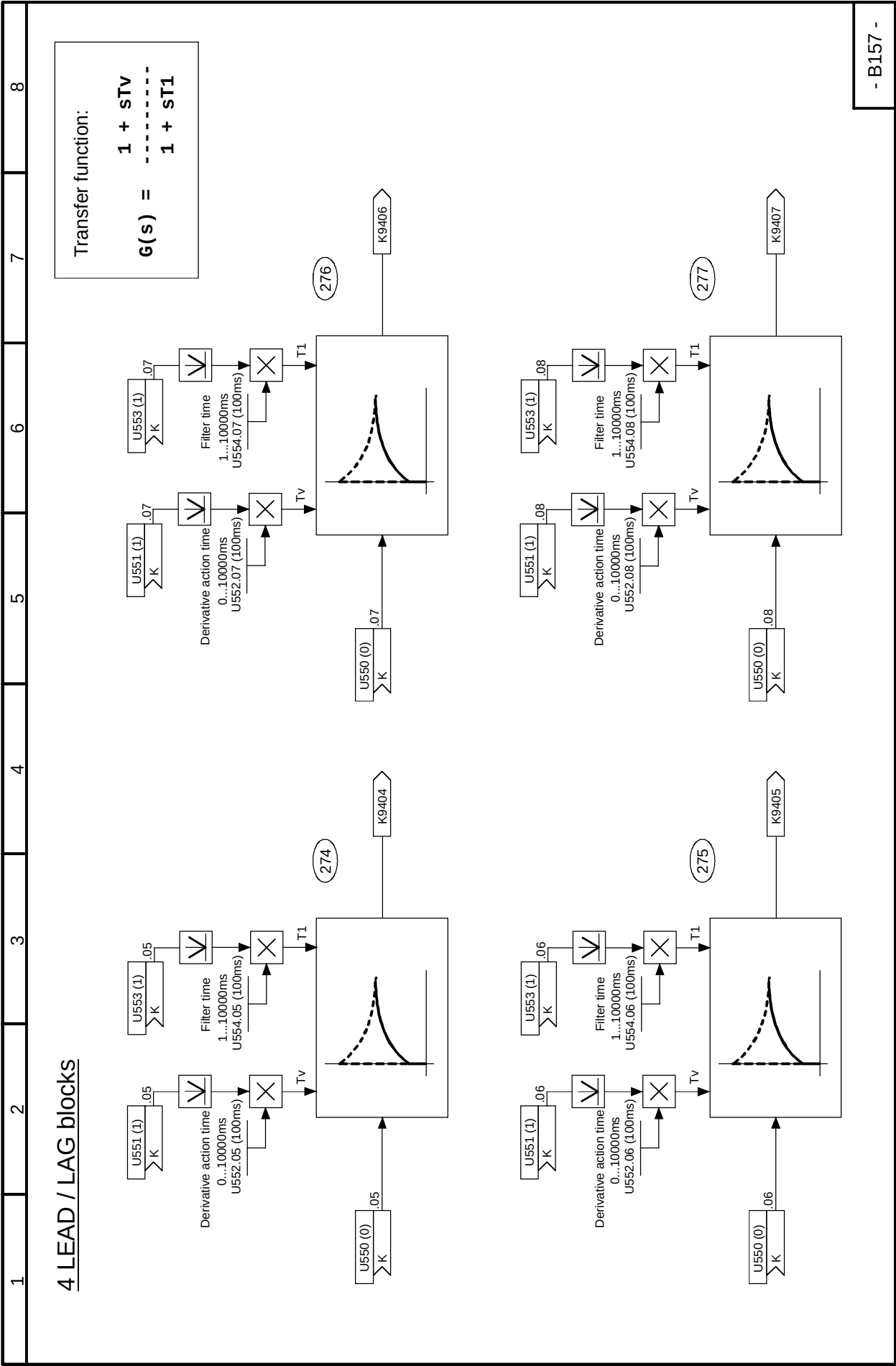
K9227

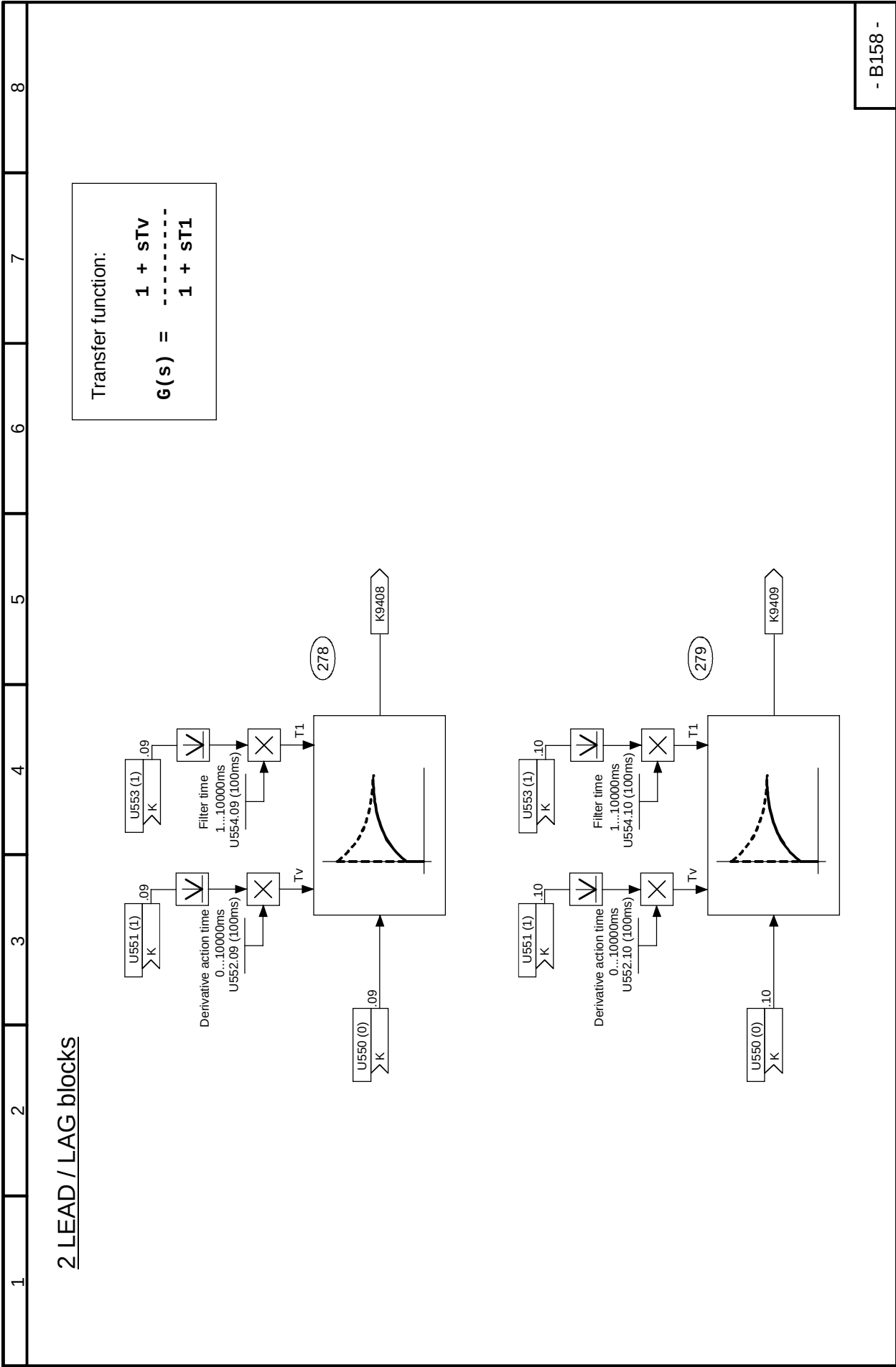
105

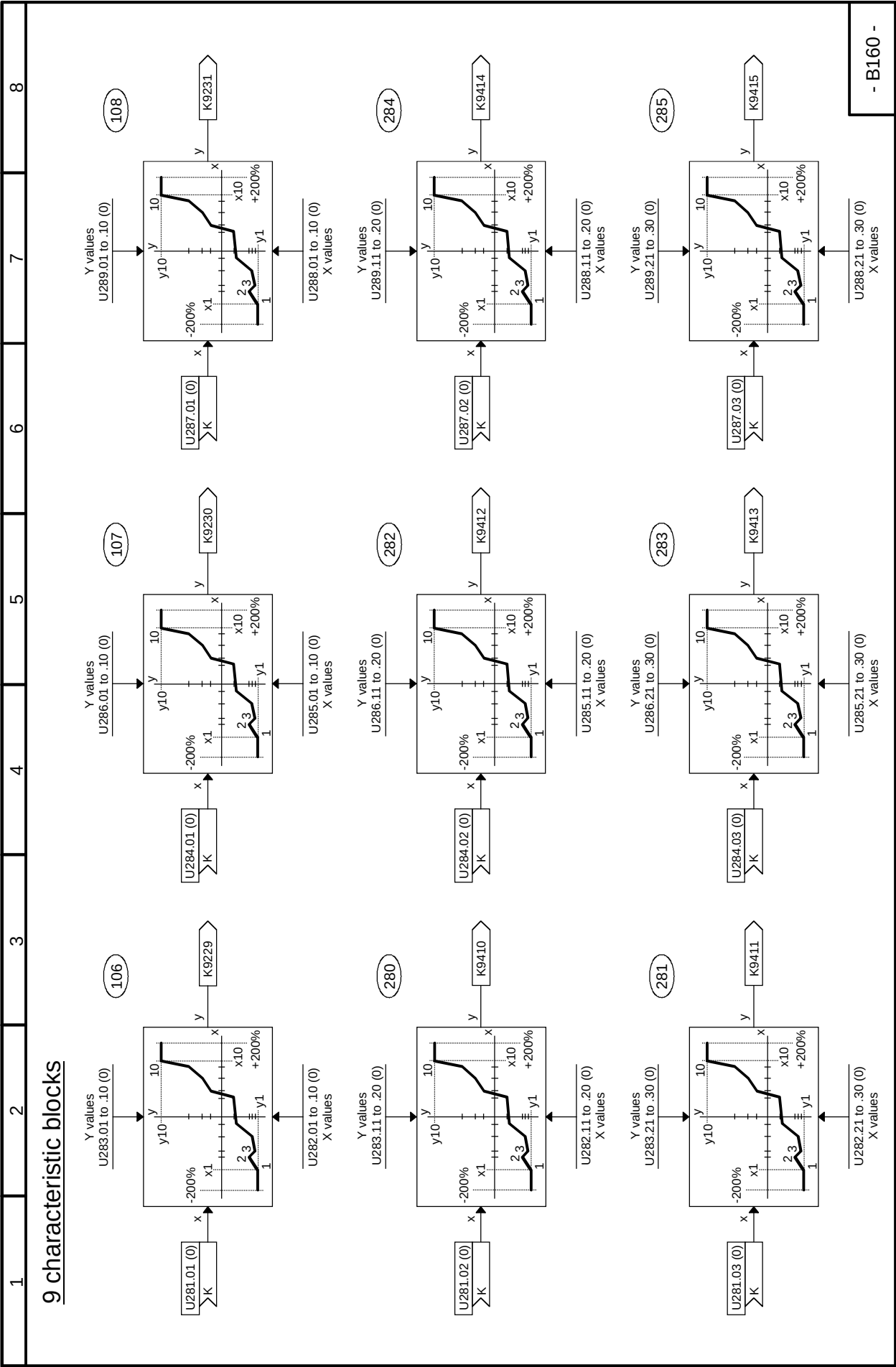
- B155 -

Sheet B156 Derivative / delay elements (LEAD / LAG blocks)

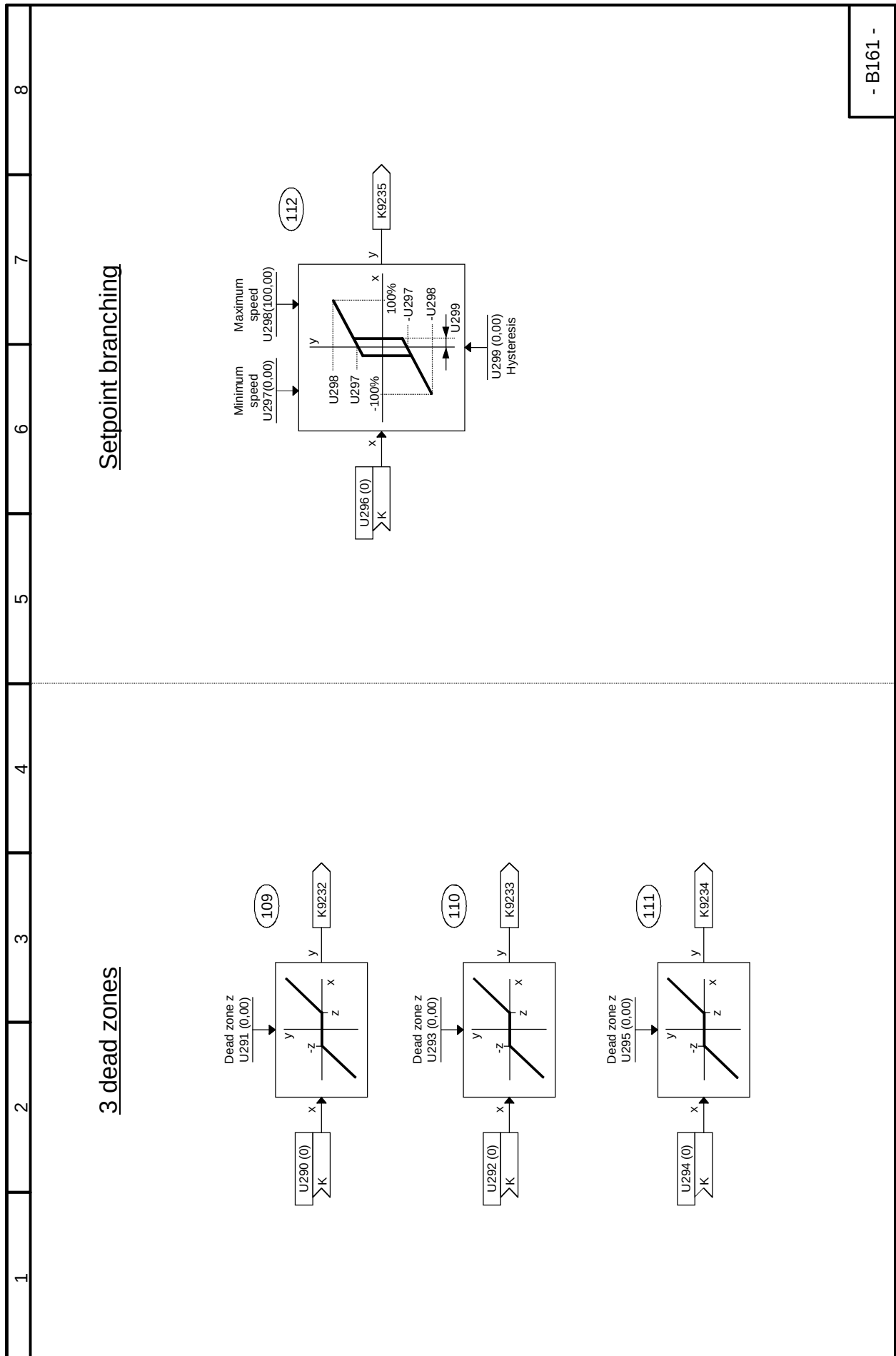




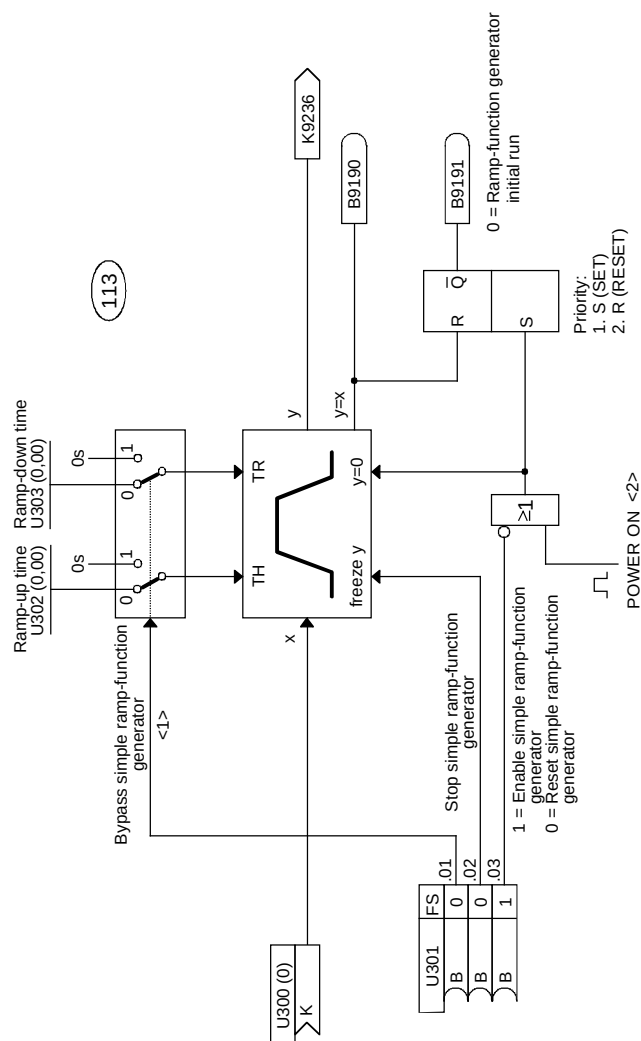




Sheet B161 Dead zones, Setpoint branching



Simple ramp-function generator

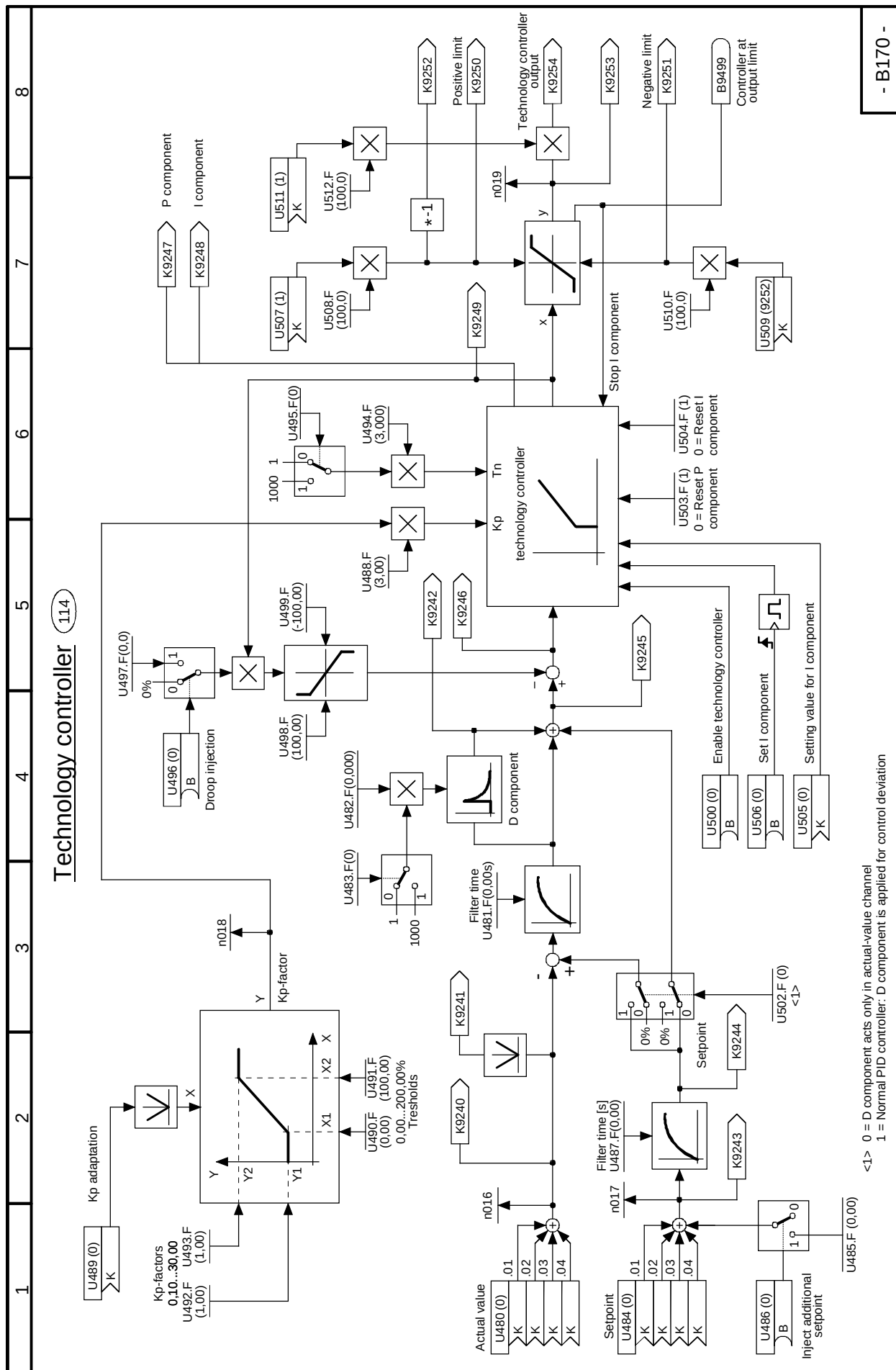


<1> When U301.01 = 9191, the ramp-f function generator operates only once after it has been enabled (edge log. "0" to "1")

<2> from voltage monitor for electronics power supply

- B165 -

Sheet B170 Technology controller



PI-controller

1
(260)U534 (1)
>K .01Filter time
U535.01 (0 ms)

T1

U530 (0)
>K .01

Enable PI-controller

U531 (0)

.01 0 = disable PI-controller <1>
 .11 1 = freeze I component <5>
 .21 1 = freeze output <3>
 .31 1 = freeze I comp. in pos. direction <6>
 .41 1 = freeze I comp. in neg. direction <7>

Set PI-controller

U532 (0)

.01 1 = set I component <4>
 .11 1 = set output <2>

U533 (0)

.01 setting value for I component
 .11 setting value for PI-controller output

U538 (1)

>K .01

U536 (1)

>K .01

U537.01

(3,00)

U539.01

(3,000 s)

Kp

Tn

Kp

Tn

Kp

Tn

Kp

Tn

Kp

Tn

Kp

Tn

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Kp

Tn

<1> disable PI-controller:
 P component = 0
 I component = 0
 output = 0

<2> set output:

P component active
 I component = setting value - P component
 output = setting value

<3> freeze output:

P component active
 I component = frozen output - P component
 output is frozen

<4> set I component:

P component active
 I component = setting value
 output = P component + I component

<5> freeze I component:
 P component active
 I component is frozen
 output = P component + I component

<6> freeze I component in pos. direction:

P component active
 if controller input (X) is positive,
 I component is frozen
 output = P component + I component

<7> freeze I component in neg. direction:

P component active
 if controller input (X) is negative,
 I component is frozen
 output = P component + I component

Transfer function:

$$G(s) = \frac{1}{1 + sT1} * Kp * \frac{1 + sTn}{sTn}$$

U542 (1)

>K .01

U543.01

(100,0)

U544 (9306)

>K .01

U545.01

(100,0)

U546 (9307)

>K .01

U547 (9308)

>K .01

U548 (9309)

>K .01

U549 (9310)

>K .01

U550 (9311)

>K .01

U551 (9312)

>K .01

U552 (9313)

>K .01

U553 (9314)

>K .01

U554 (9315)

>K .01

U555 (9316)

>K .01

U556 (9317)

>K .01

U557 (9318)

>K .01

U558 (9319)

>K .01

U559 (9320)

>K .01

U560 (9321)

>K .01

U561 (9322)

>K .01

U562 (9323)

>K .01

U563 (9324)

>K .01

U564 (9325)

>K .01

U565 (9326)

>K .01

U566 (9327)

>K .01

U567 (9328)

>K .01

U568 (9329)

>K .01

U569 (9330)

>K .01

U570 (9331)

>K .01

U571 (9332)

>K .01

U572 (9333)

>K .01

U573 (9334)

>K .01

U574 (9335)

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U575 (9336)

>K .01

U576 (9337)

>K .01

U577 (9338)

>K .01

U578 (9339)

>K .01

U579 (9340)

>K .01

U580 (9341)

>K .01

U581 (9342)

>K .01

U582 (9343)

>K .01

U583 (9344)

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U584 (9345)

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U585 (9346)

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U597 (9358)

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U598 (9359)

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U599 (9360)

>K .01

U600 (9361)

>K .01

U601 (9362)

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U602 (9363)

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U603 (9364)

>K .01

U604 (9365)

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U605 (9366)

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U606 (9367)

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U615 (9376)

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U616 (9377)

>K .01

U617 (9378)

>K .01

U618 (9379)

>K .01

U619 (9380)

>K .01

U620 (9381)

>K .01

U621 (9382)

>K .01

U622 (9383)

>K .01

U623 (9384)

>K .01

U624 (9385)

>K .01

U625 (9386)

>K .01

U626 (9387)

>K .01

U627 (9388)

>K .01

U628 (9389)

>K .01

U629 (9390)

>K .01

U630 (9391)

>K .01

U631 (9392)

>K .01

U632 (9393)

>K .01

U633 (9394)

>K .01

U634 (9395)

>K .01

U635 (9396)

>K .01

U636 (9397)

>K .01

U637 (9398)

>K .01

U638 (9399)

>K .01

U639 (9400)

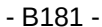
>K .01

U640 (9401)

>K .01

U641 (9402)

>K .01

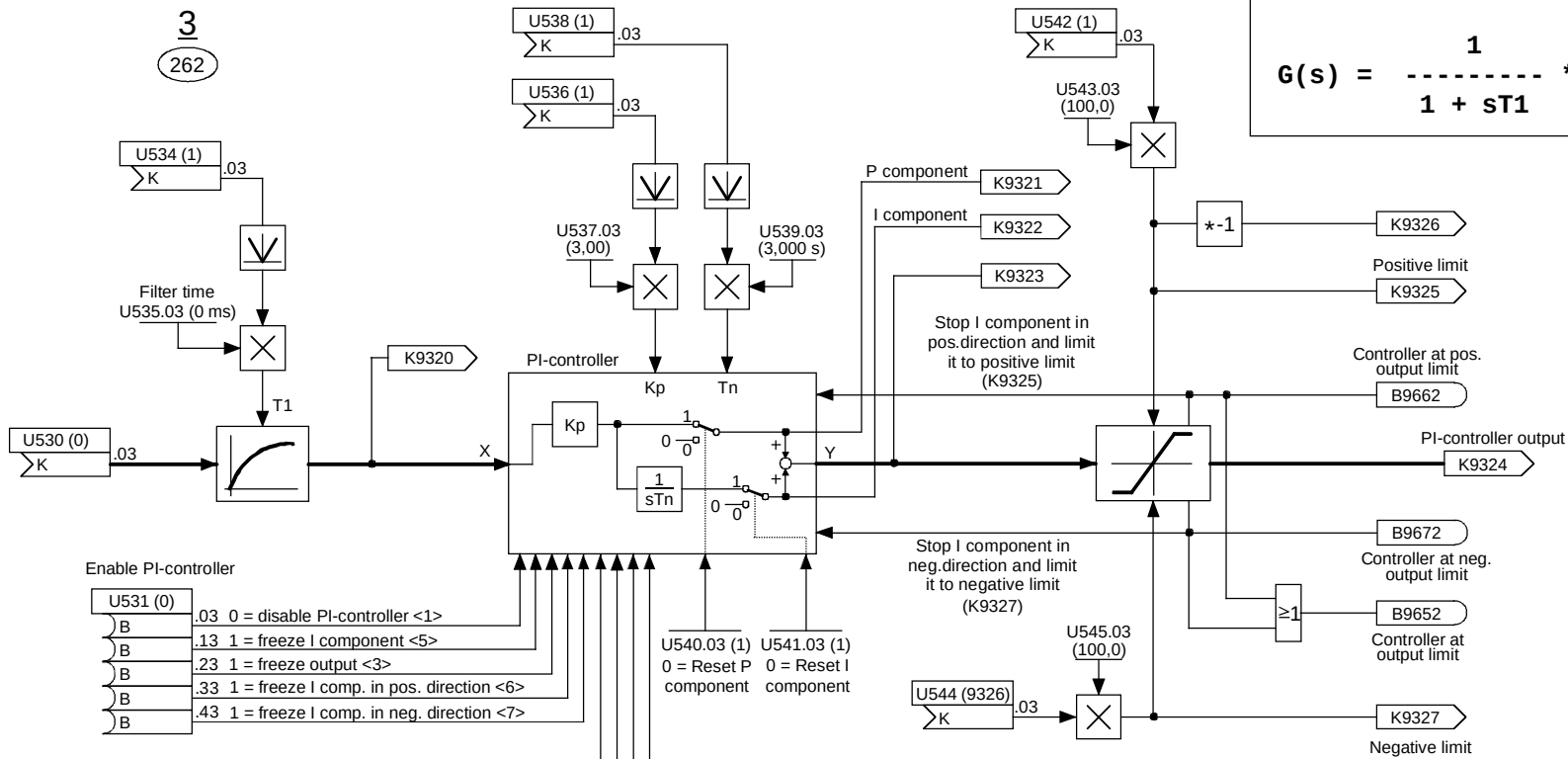


PI-controller

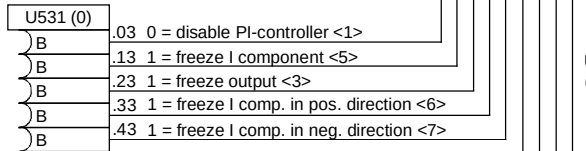
3
262

Transfer function:

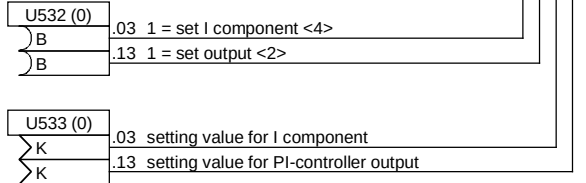
$$G(s) = \frac{1}{1 + sT1} * Kp * \frac{1 + sTn}{sTn}$$



Enable PI-controller



Set PI-controller



<1> disable PI-controller:
P component = 0
I component = 0
output = 0

<2> set output:

P component active
I component = setting value - P component
output = setting value

<3> freeze output:

P component active
I component = frozen output - P component
output is frozen

<4> set I component:

P component active
I component = setting value
output = P component + I component

<5> freeze I component:

P component active
I component is frozen
output = P component + I component

<6> freeze I component in pos. direction:

P component active
if controller input (X) is positive,
I component is frozen
output = P component + I component

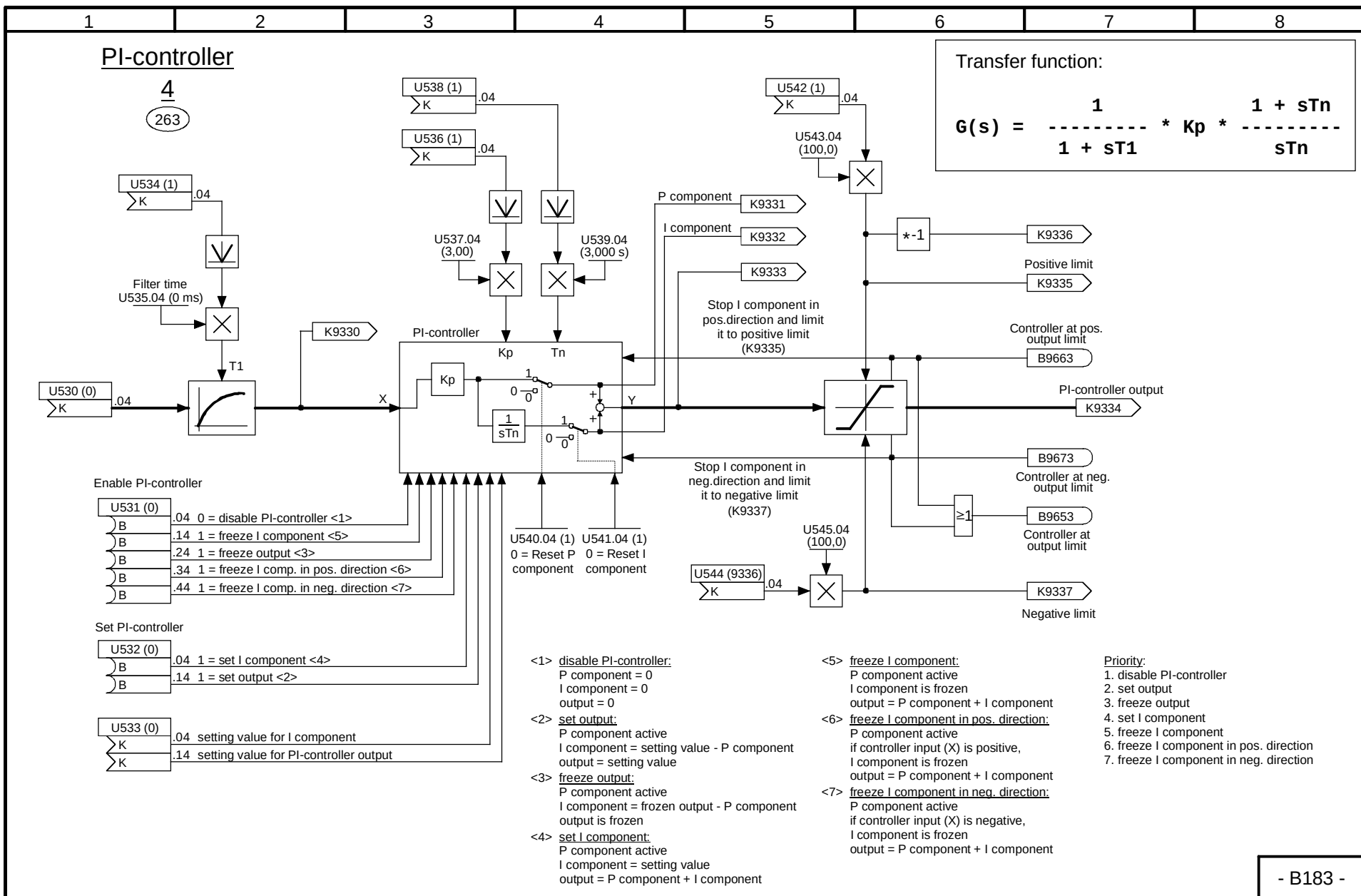
<7> freeze I component in neg. direction:

P component active
if controller input (X) is negative,
I component is frozen
output = P component + I component

Priority:

1. disable PI-controller
2. set output
3. freeze output
4. set I component
5. freeze I component
6. freeze I component in pos. direction
7. freeze I component in neg. direction

- B182 -

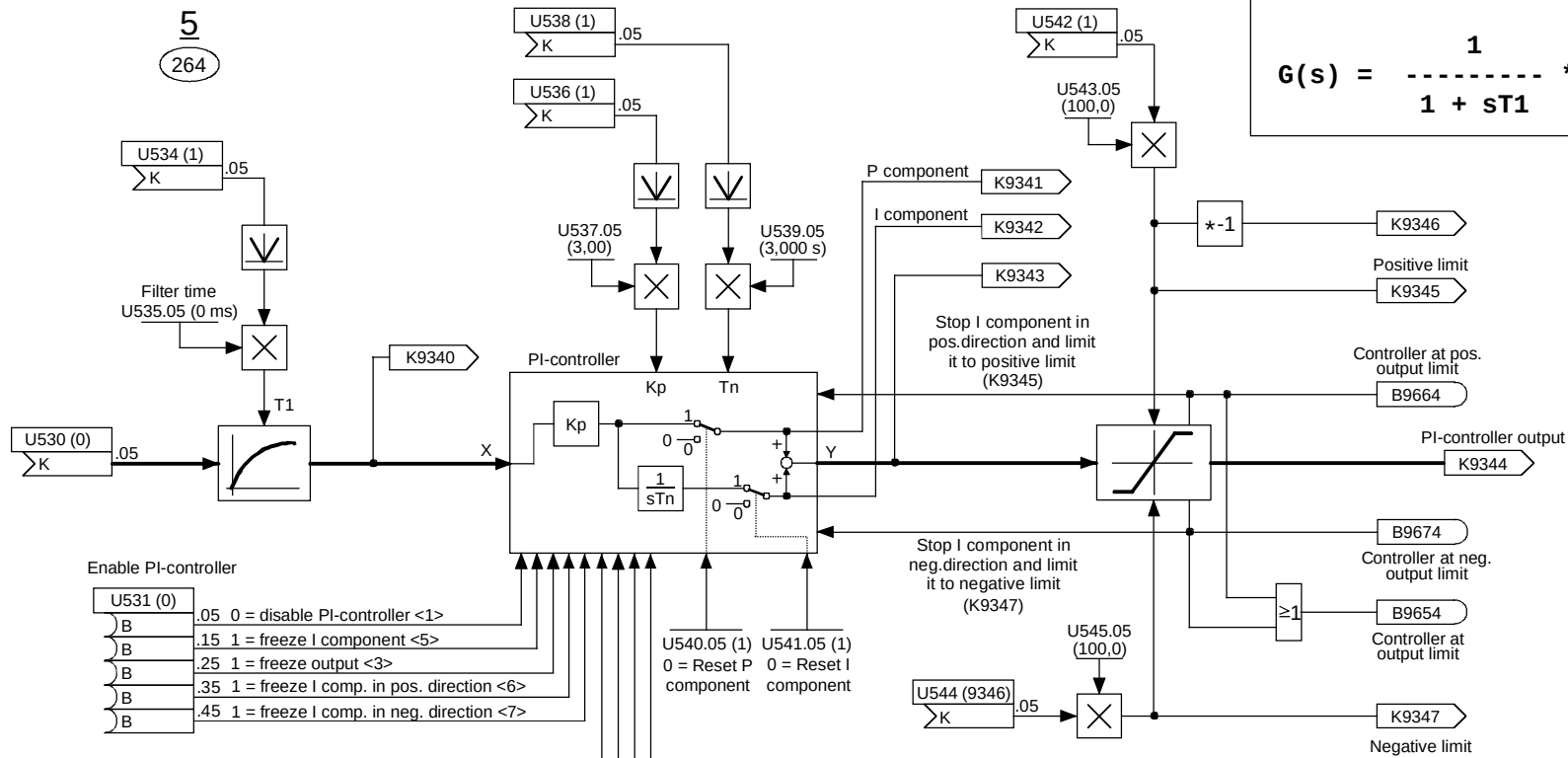


PI-controller

5
(264)

Transfer function:

$$G(s) = \frac{1}{1 + sT1} * Kp * \frac{1 + sTn}{sTn}$$



<1> **disable PI-controller:**
P component = 0
I component = 0
output = 0

<2> **set output:**
P component active
I component = setting value - P component
output = setting value

<3> **freeze output:**
P component active
I component = frozen output - P component
output is frozen

<4> **set I component:**
P component active
I component = setting value
output = P component + I component

<5> **freeze I component:**
P component active
I component is frozen
output = P component + I component

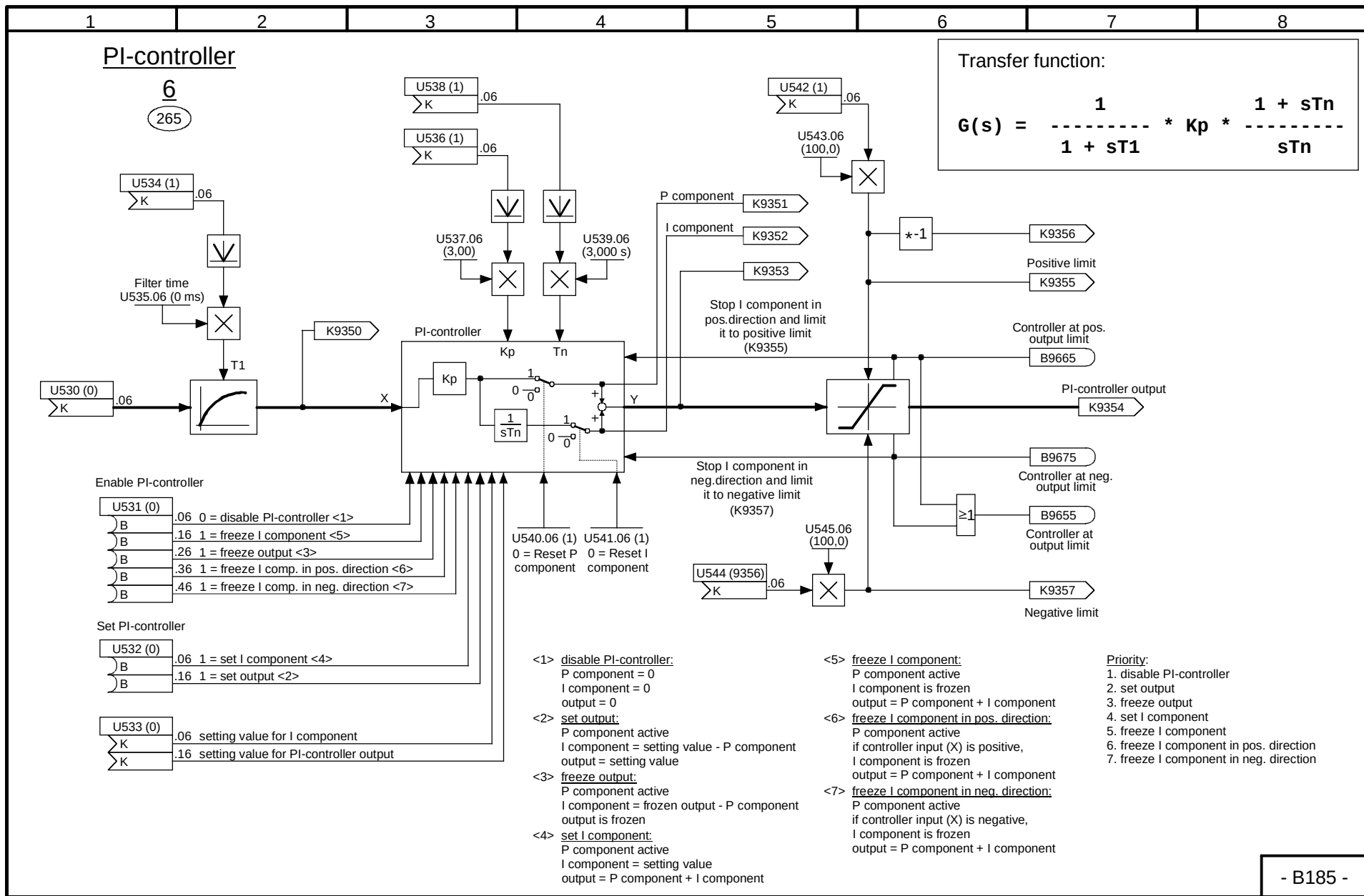
<6> **freeze I component in pos. direction:**
P component active
if controller input (X) is positive,
I component is frozen
output = P component + I component

<7> **freeze I component in neg. direction:**
P component active
if controller input (X) is negative,
I component is frozen
output = P component + I component

Priority:

1. disable PI-controller
2. set output
3. freeze output
4. set I component
5. freeze I component
6. freeze I component in pos. direction
7. freeze I component in neg. direction

- B184 -

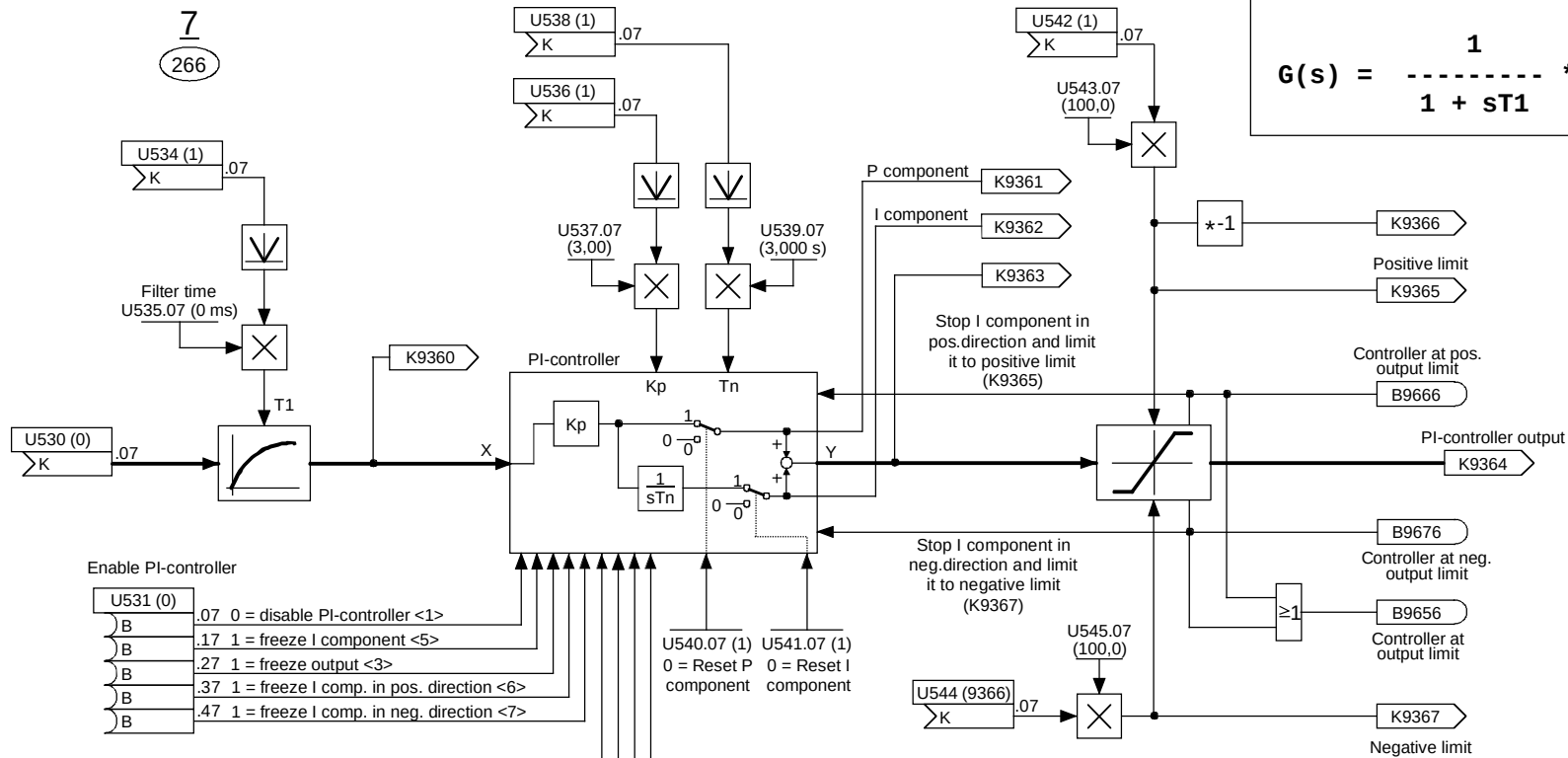


PI-controller

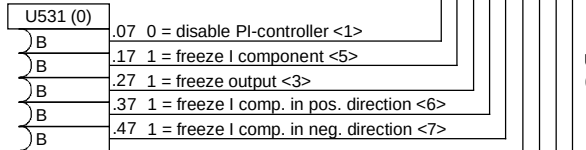
7
(266)

Transfer function:

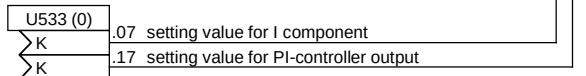
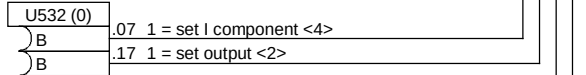
$$G(s) = \frac{1}{1 + sT1} * Kp * \frac{1 + sTn}{sTn}$$



Enable PI-controller



Set PI-controller



<1> disable PI-controller:

P component = 0
I component = 0
output = 0

<2> set output:

P component active
I component = setting value - P component
output = setting value

<3> freeze output:

P component active
I component = frozen output - P component
output is frozen

<4> set I component:

P component active
I component = setting value
output = P component + I component

<5> freeze I component:

P component active
I component is frozen
output = P component + I component

<6> freeze I component in pos. direction:

P component active
if controller input (X) is positive,
I component is frozen
output = P component + I component

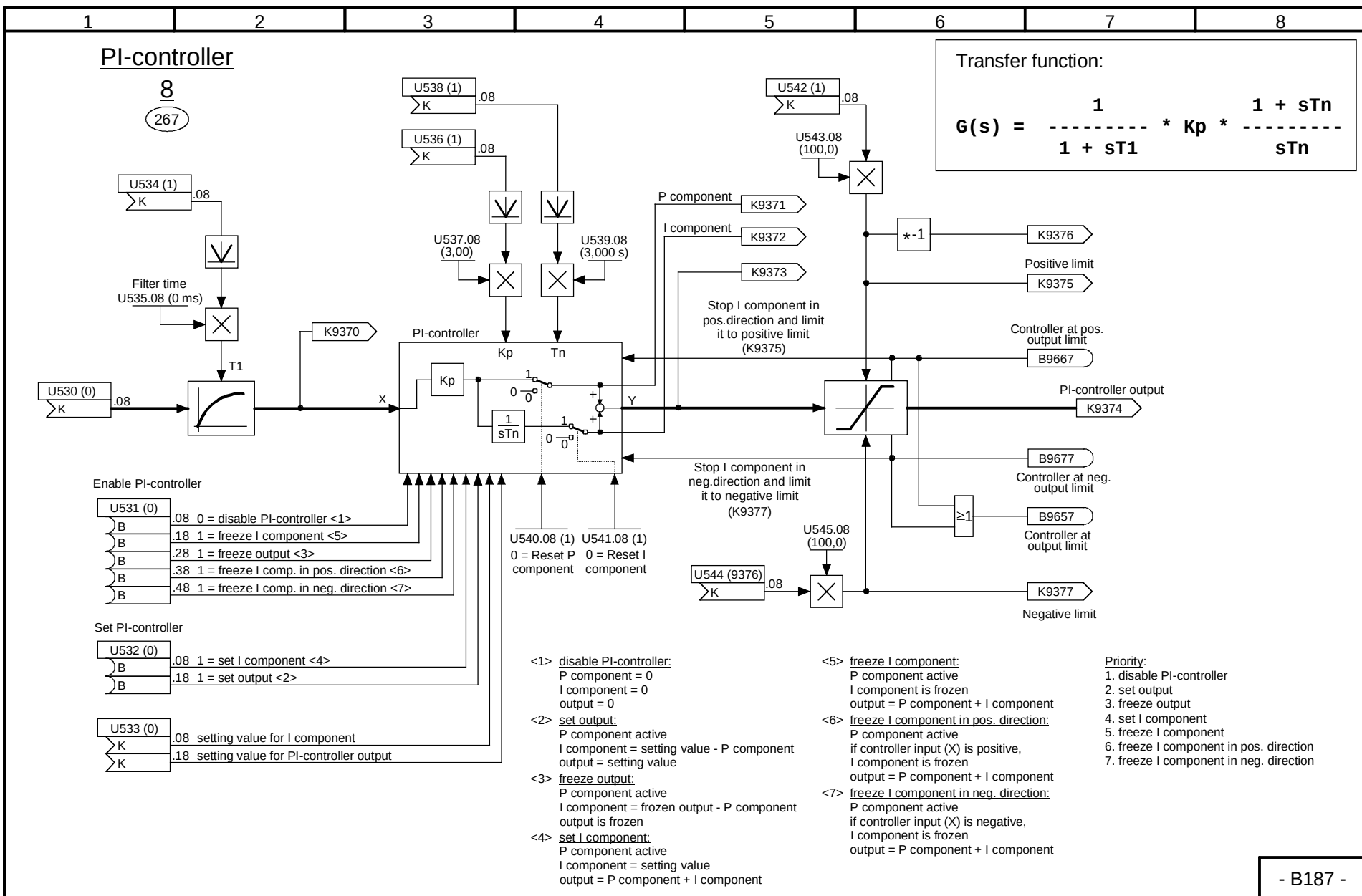
<7> freeze I component in neg. direction:

P component active
if controller input (X) is negative,
I component is frozen
output = P component + I component

Priority:

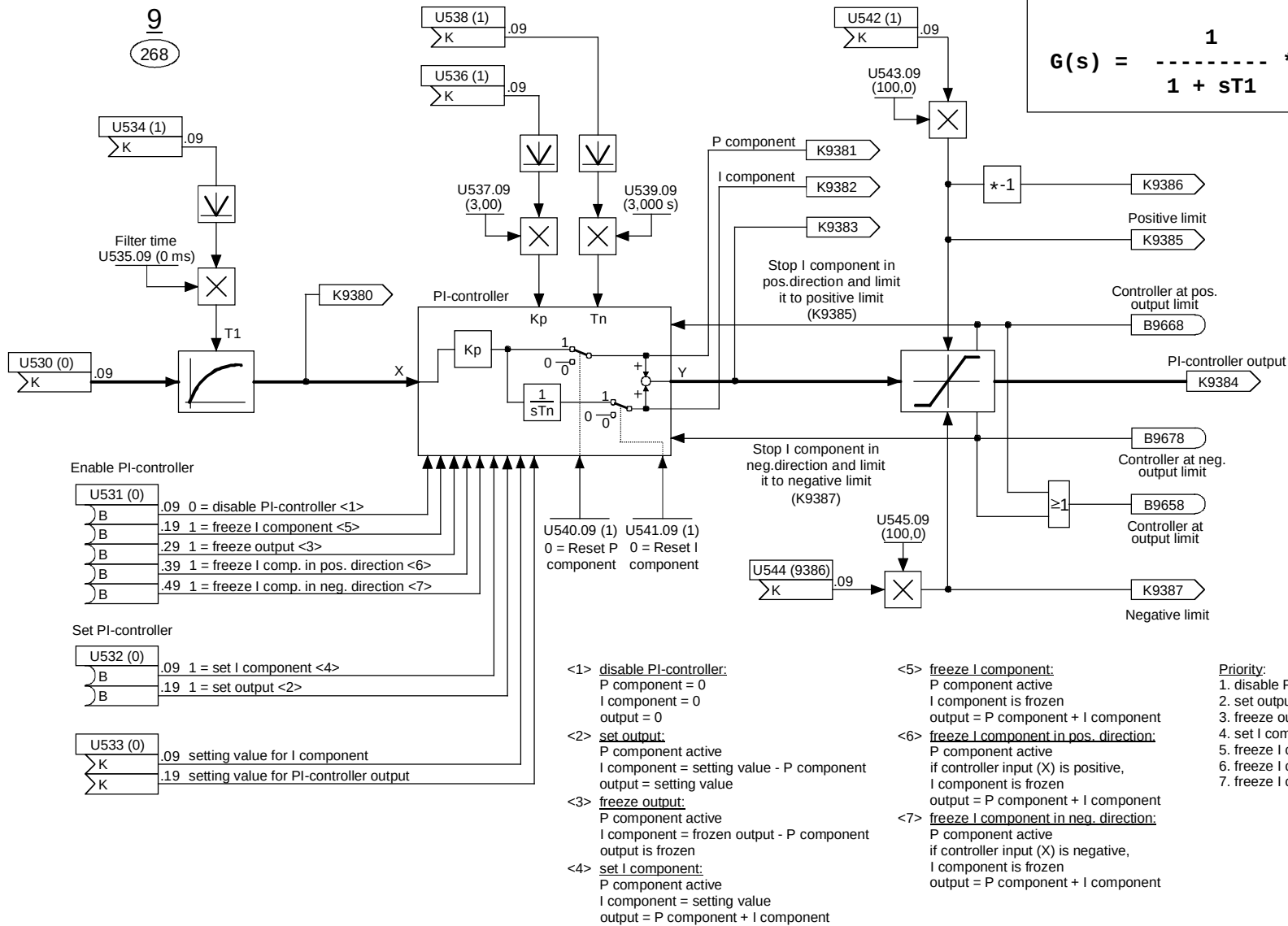
1. disable PI-controller
2. set output
3. freeze output
4. set I component
5. freeze I component
6. freeze I component in pos. direction
7. freeze I component in neg. direction

- B186 -

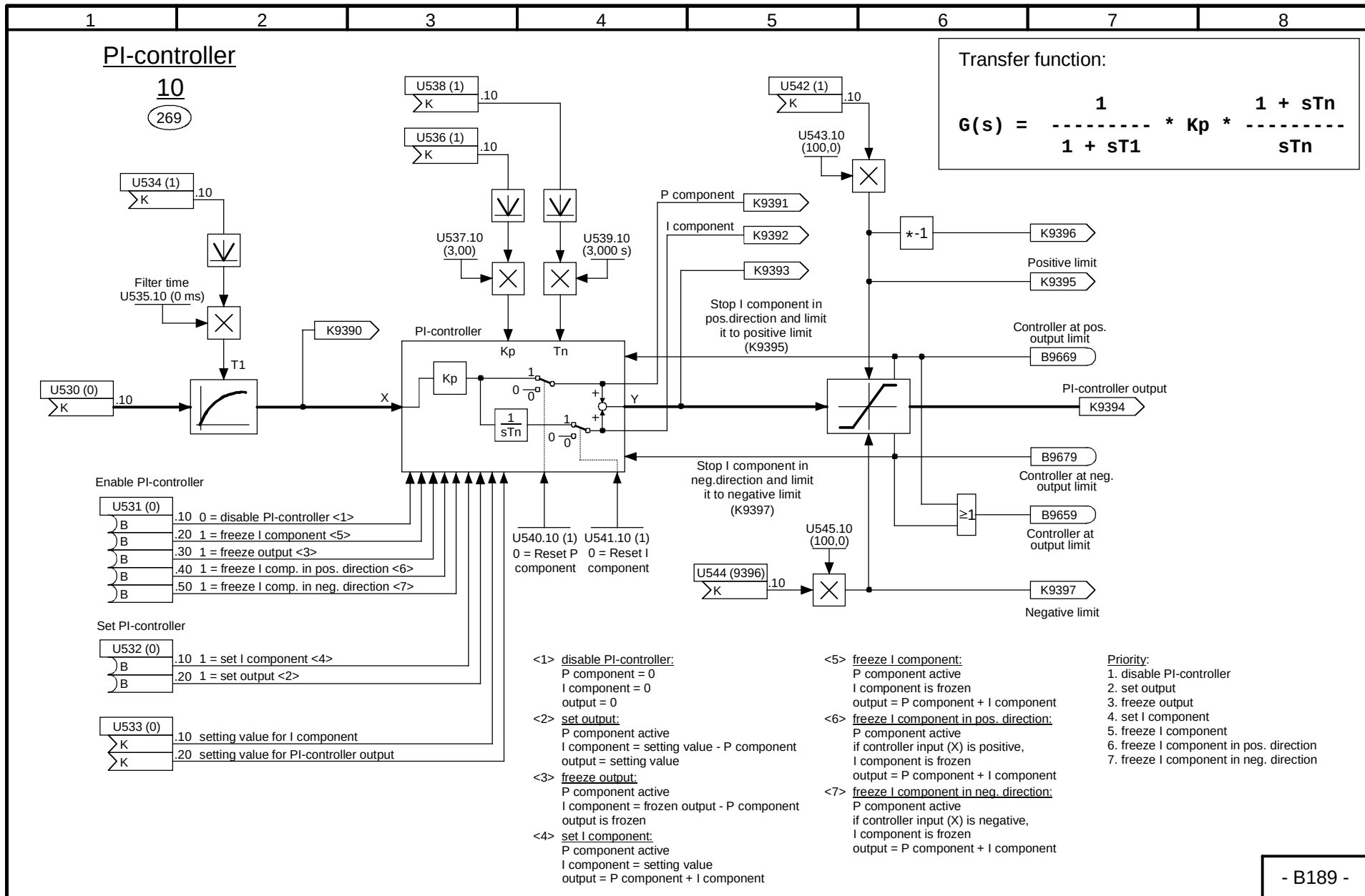


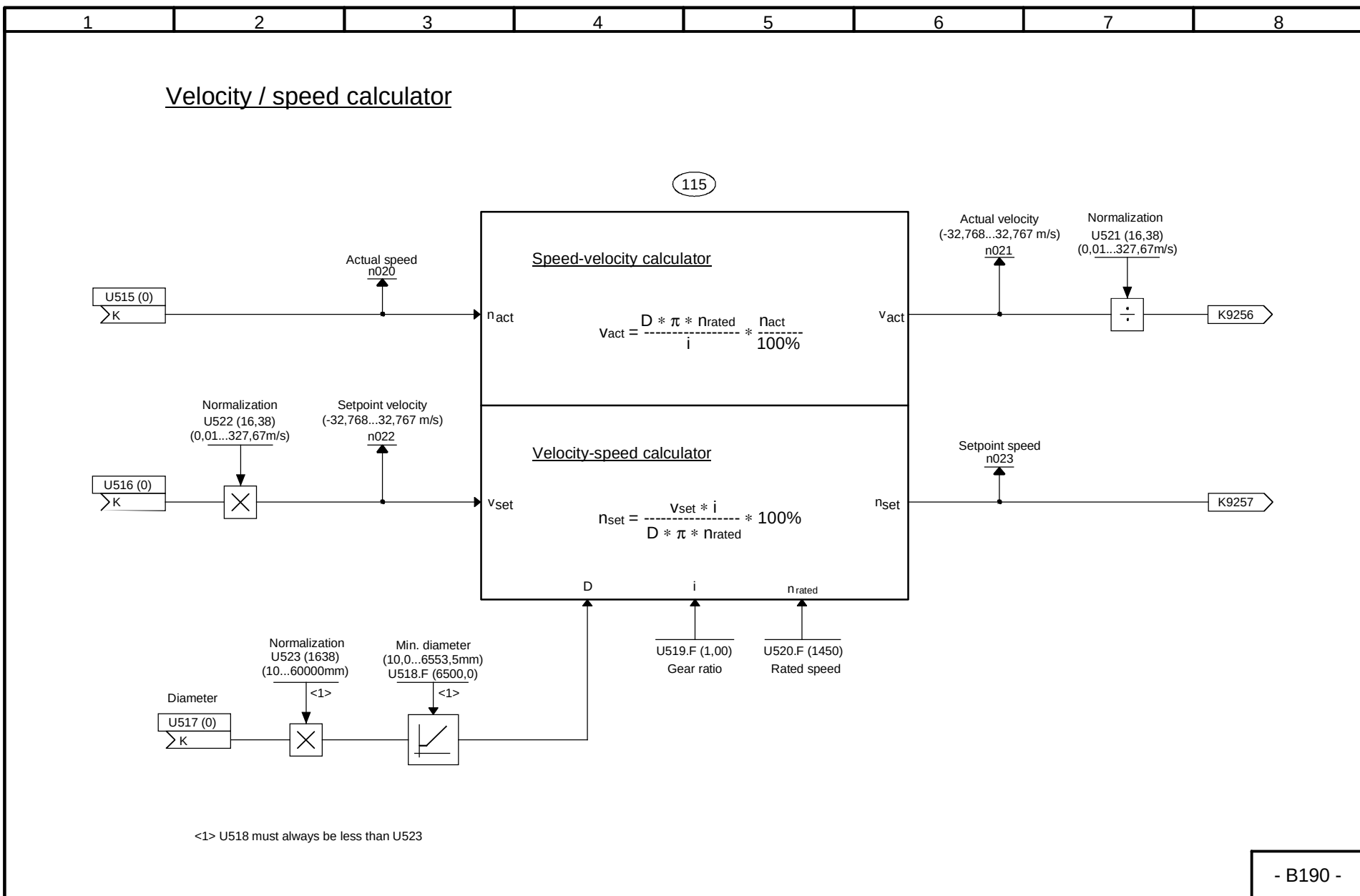
- B187 -

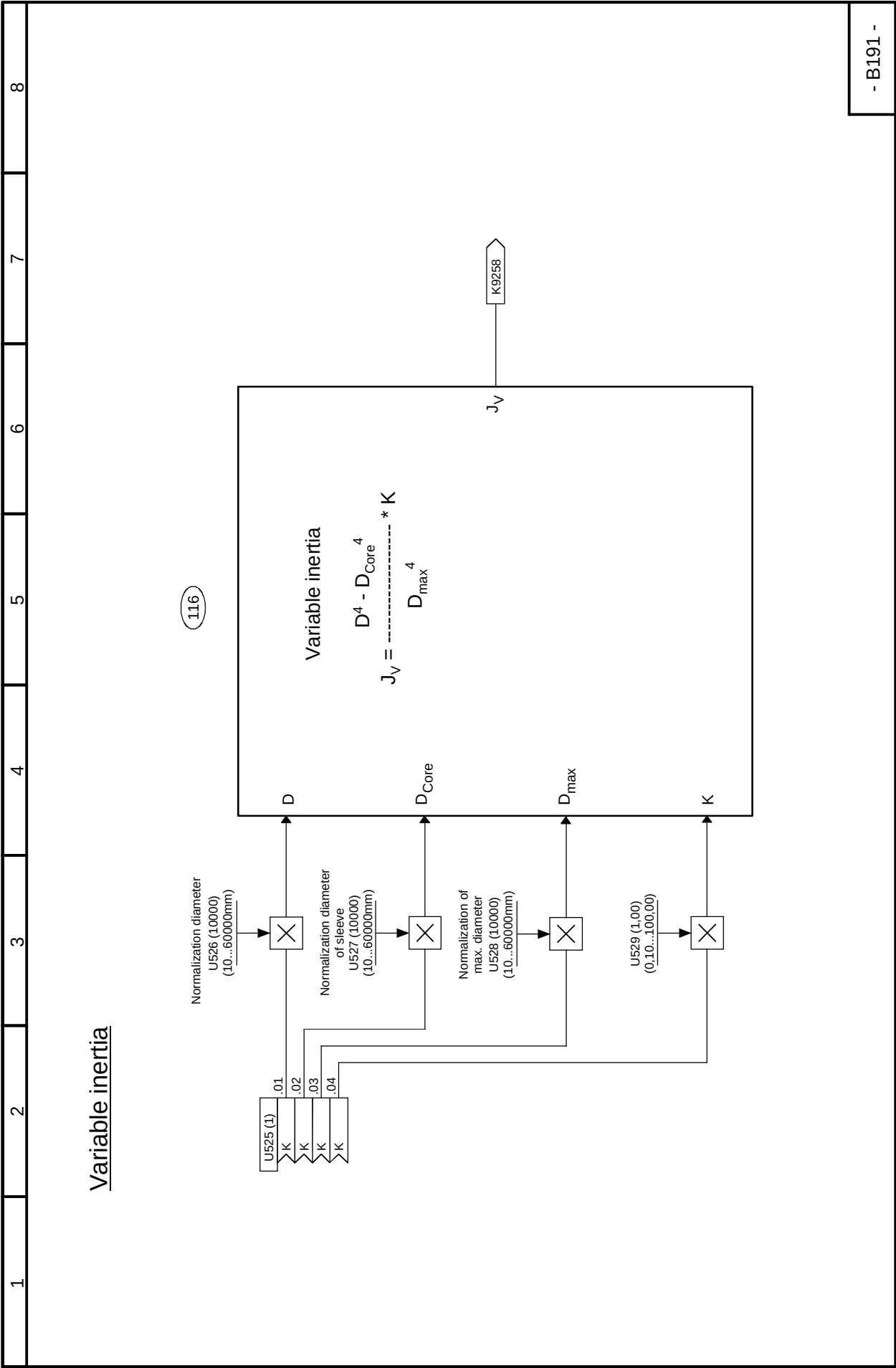
PI-controller

9
(268)

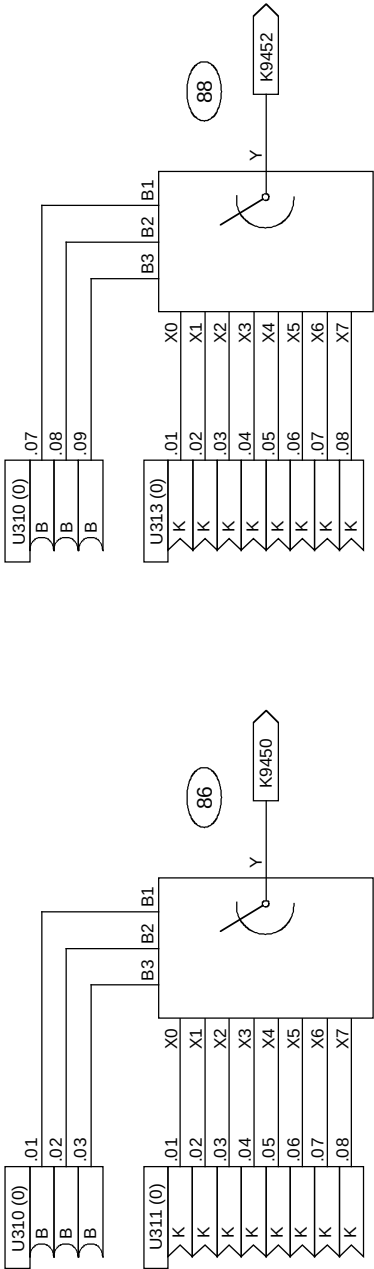
- B188 -



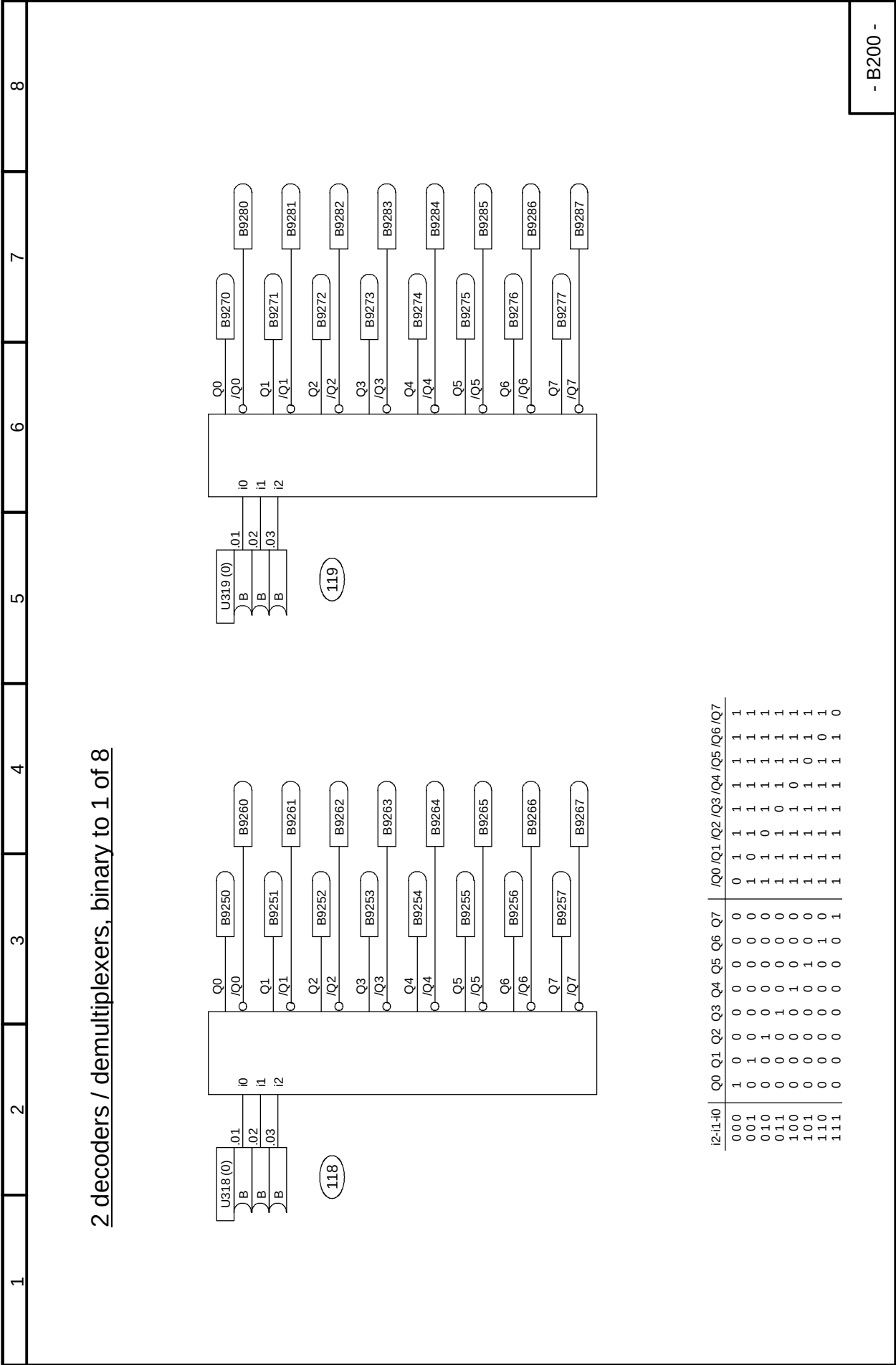




3 Multiplexers



B3	B2	B1	Y
0	0	0	X0
0	0	1	X1
0	1	0	X2
0	1	1	X3
1	0	0	X4
1	0	1	X5
1	1	0	X6
1	1	1	X7



1	2	3	4	5	6	7	8
28 AND elements with 3 inputs each							
							- B205 -

1

2

3

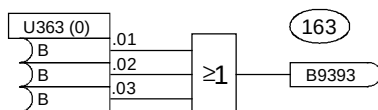
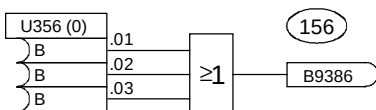
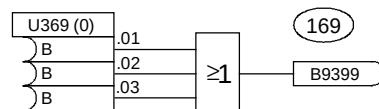
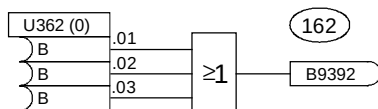
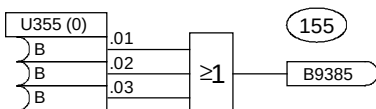
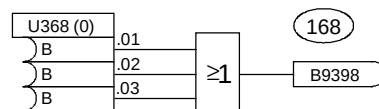
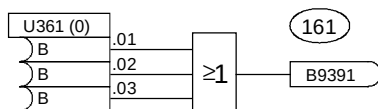
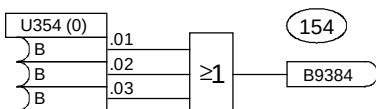
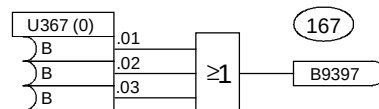
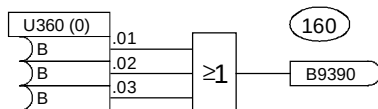
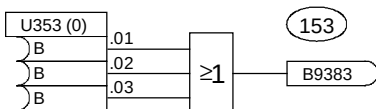
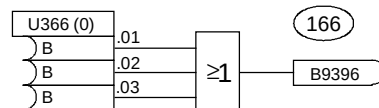
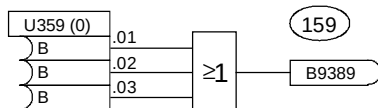
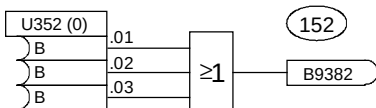
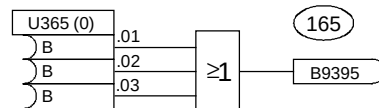
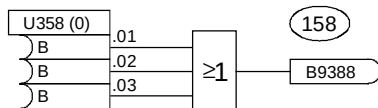
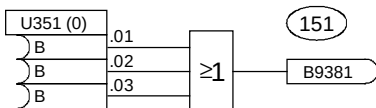
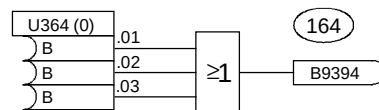
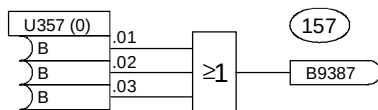
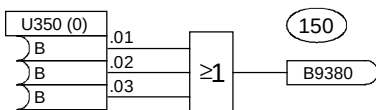
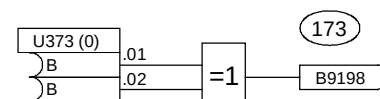
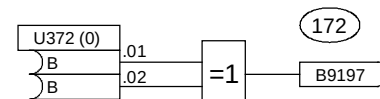
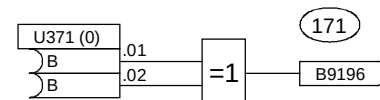
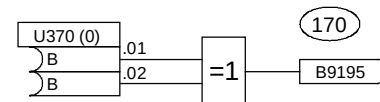
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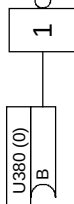
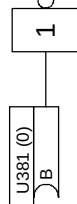
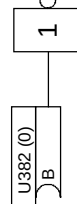
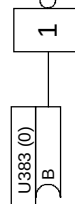
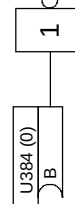
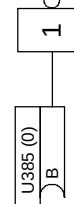
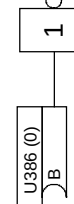
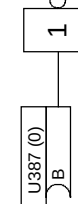
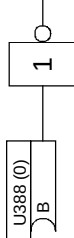
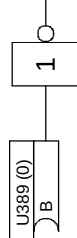
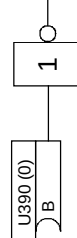
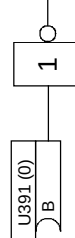
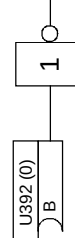
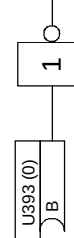
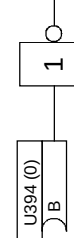
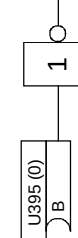
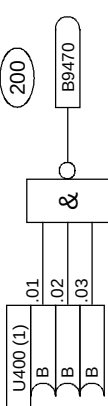
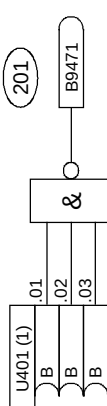
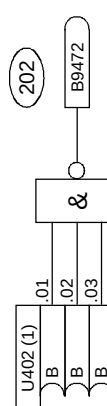
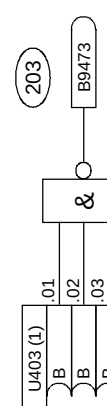
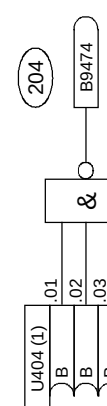
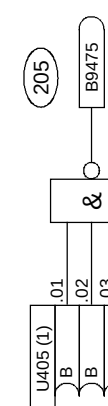
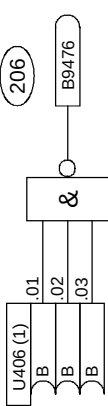
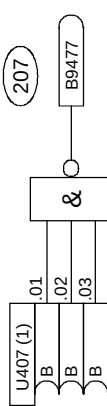
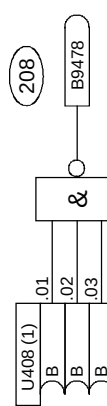
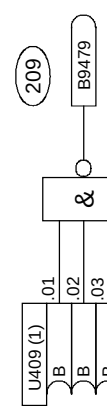
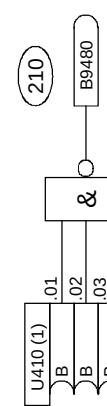
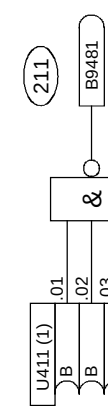
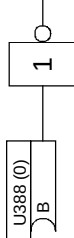
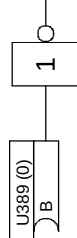
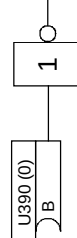
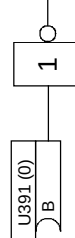
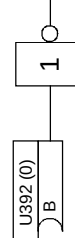
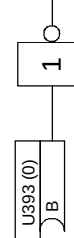
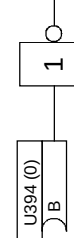
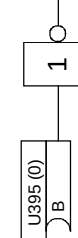
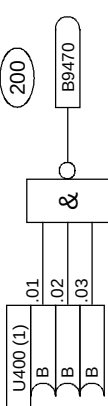
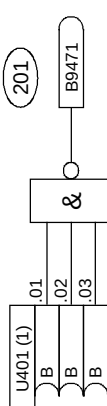
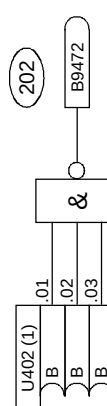
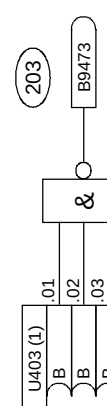
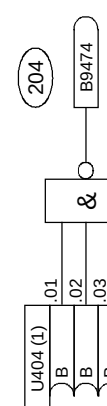
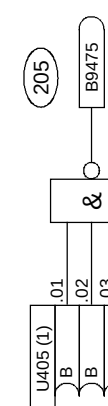
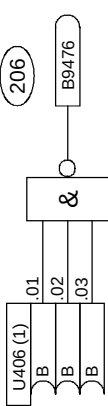
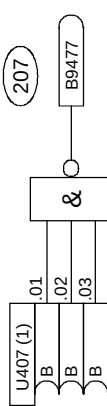
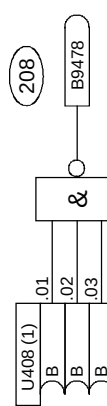
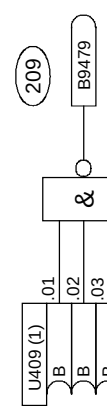
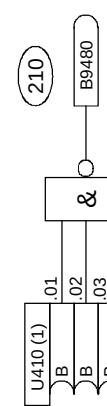
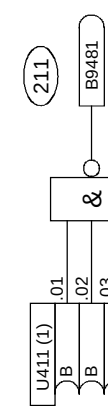
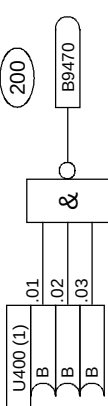
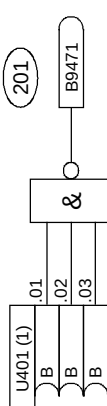
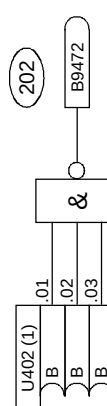
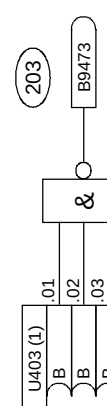
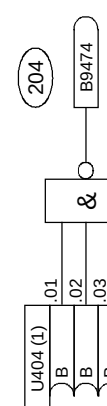
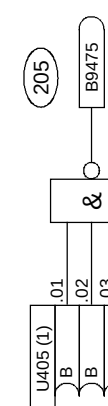
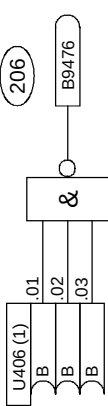
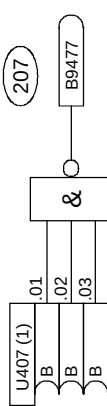
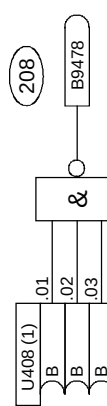
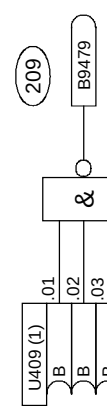
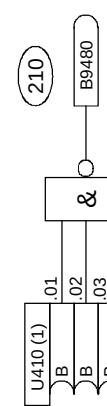
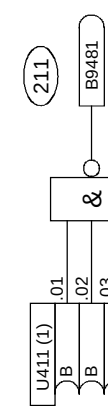
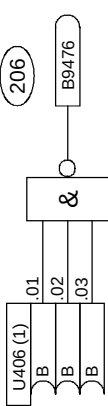
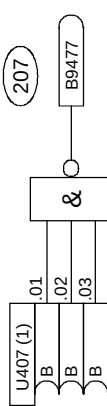
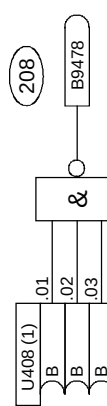
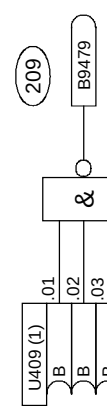
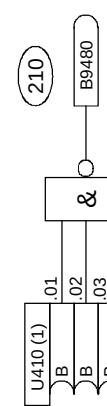
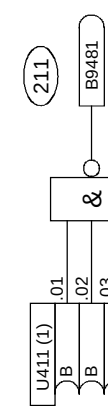
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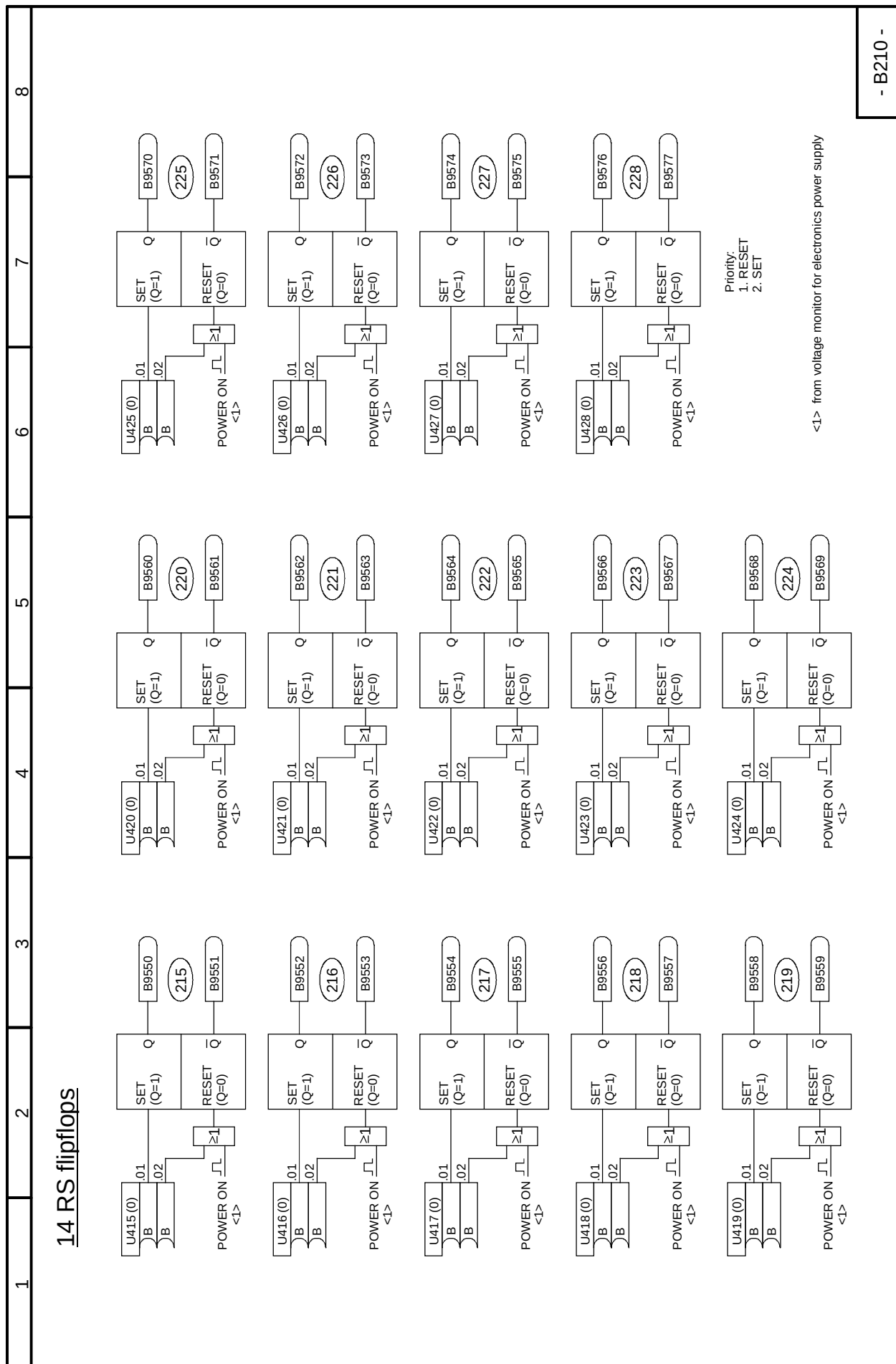
8

20 OR elements with 3 inputs each4 EXCLUSIV OR elements with 2 inputs each

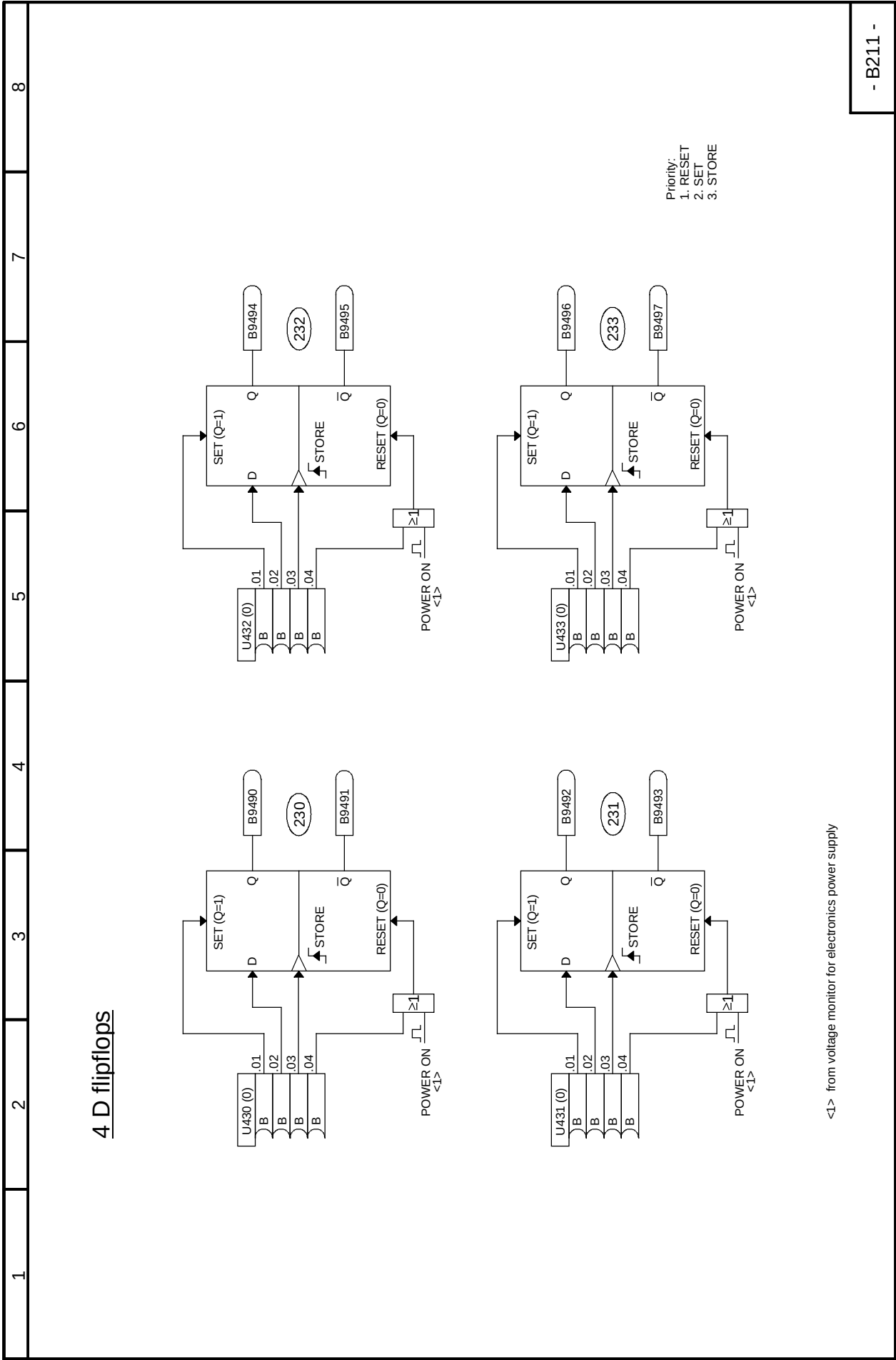
- B206 -

1	2	3	4	5	6	7	8
16 inverters				12 NAND elements with 3 inputs each			
180  181  182  183  184  185  186  187  <td> 188  189  190  191  192  193  194  195  <td> 200  201  202  203  204  205  <td> 206  207  208  209  210  211  </td></td></td>	188  189  190  191  192  193  194  195  <td> 200  201  202  203  204  205  <td> 206  207  208  209  210  211  </td></td>	200  201  202  203  204  205  <td> 206  207  208  209  210  211  </td>	206  207  208  209  210  211 				
				- B207 -			

Sheet B210 RS flipflops



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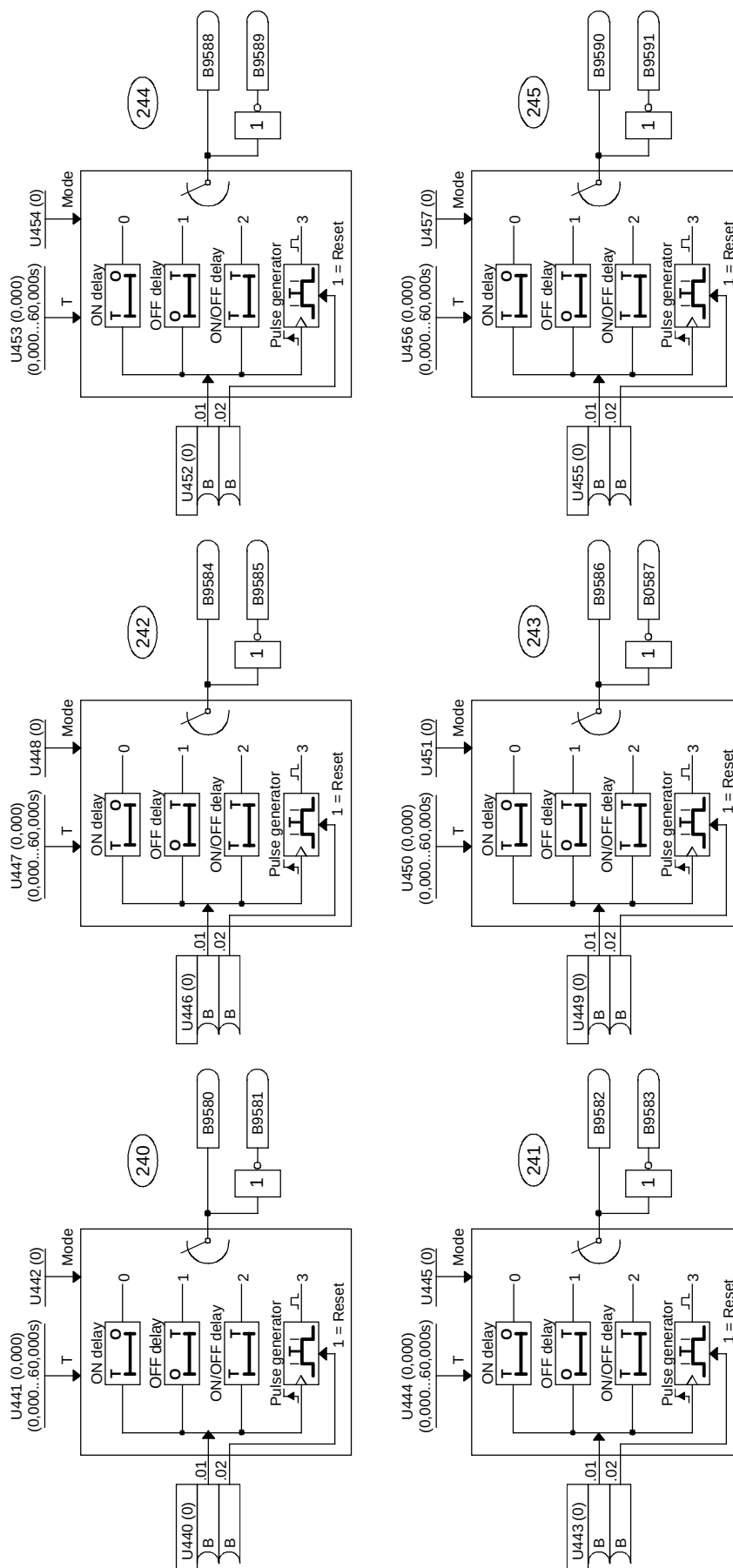


Priority:
1. RESET
2. SET
3. STORE

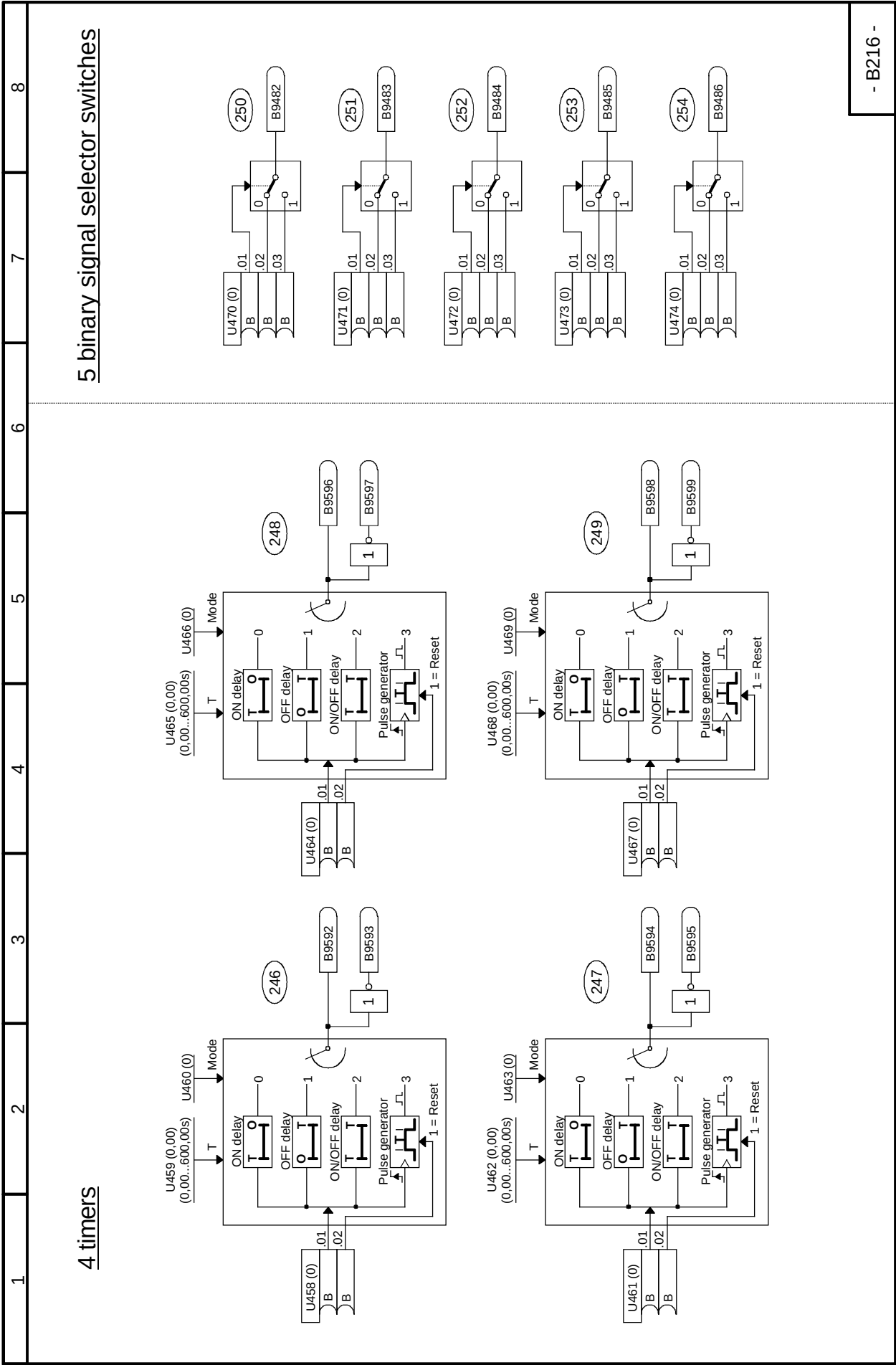
<1> from voltage monitor for electronics power supply

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4



Sheet B216 Timers (0,00...600,00s), Binary signal selector switches



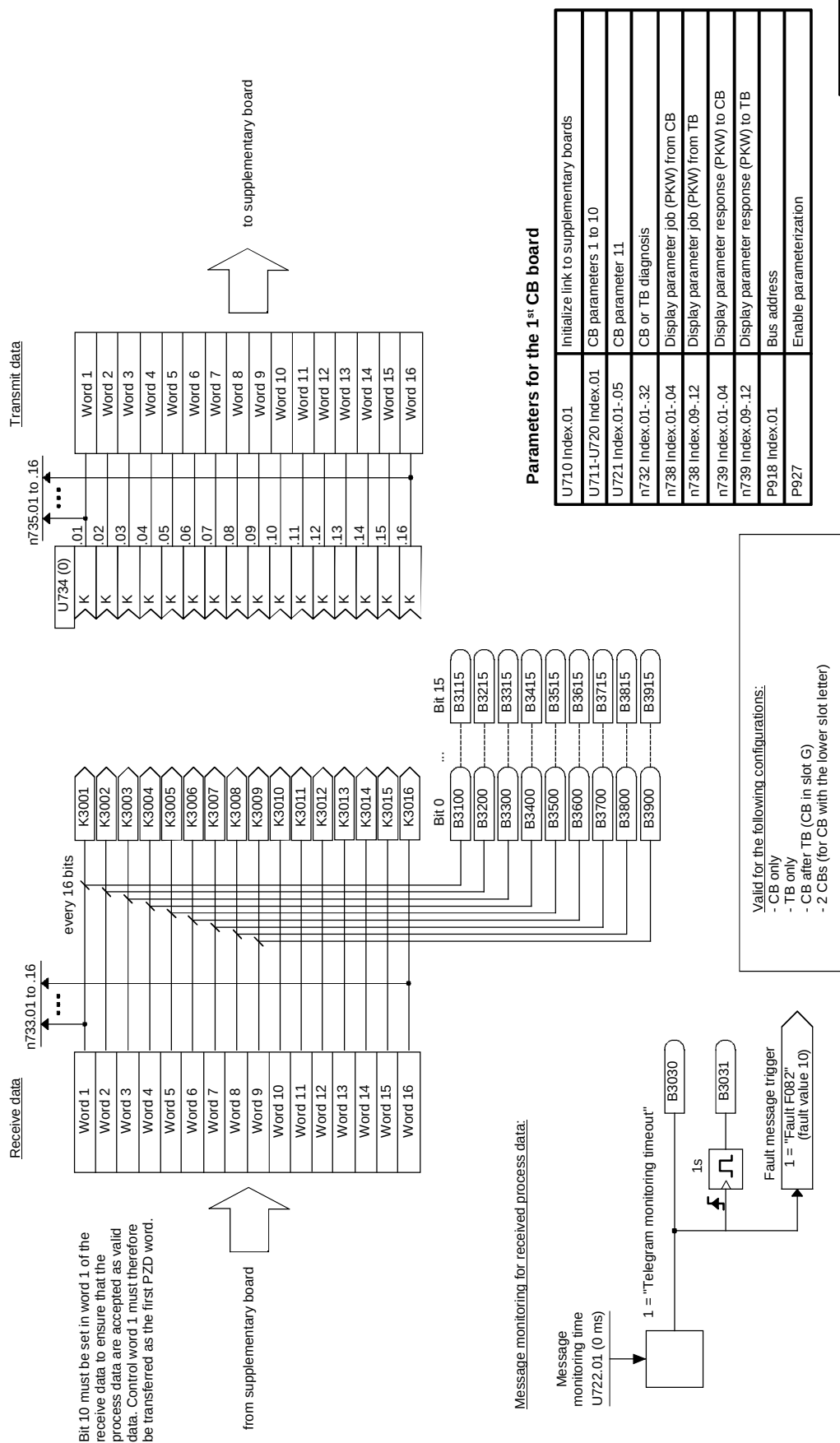
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Optional supplementary boards Sheets Z100 to Z123

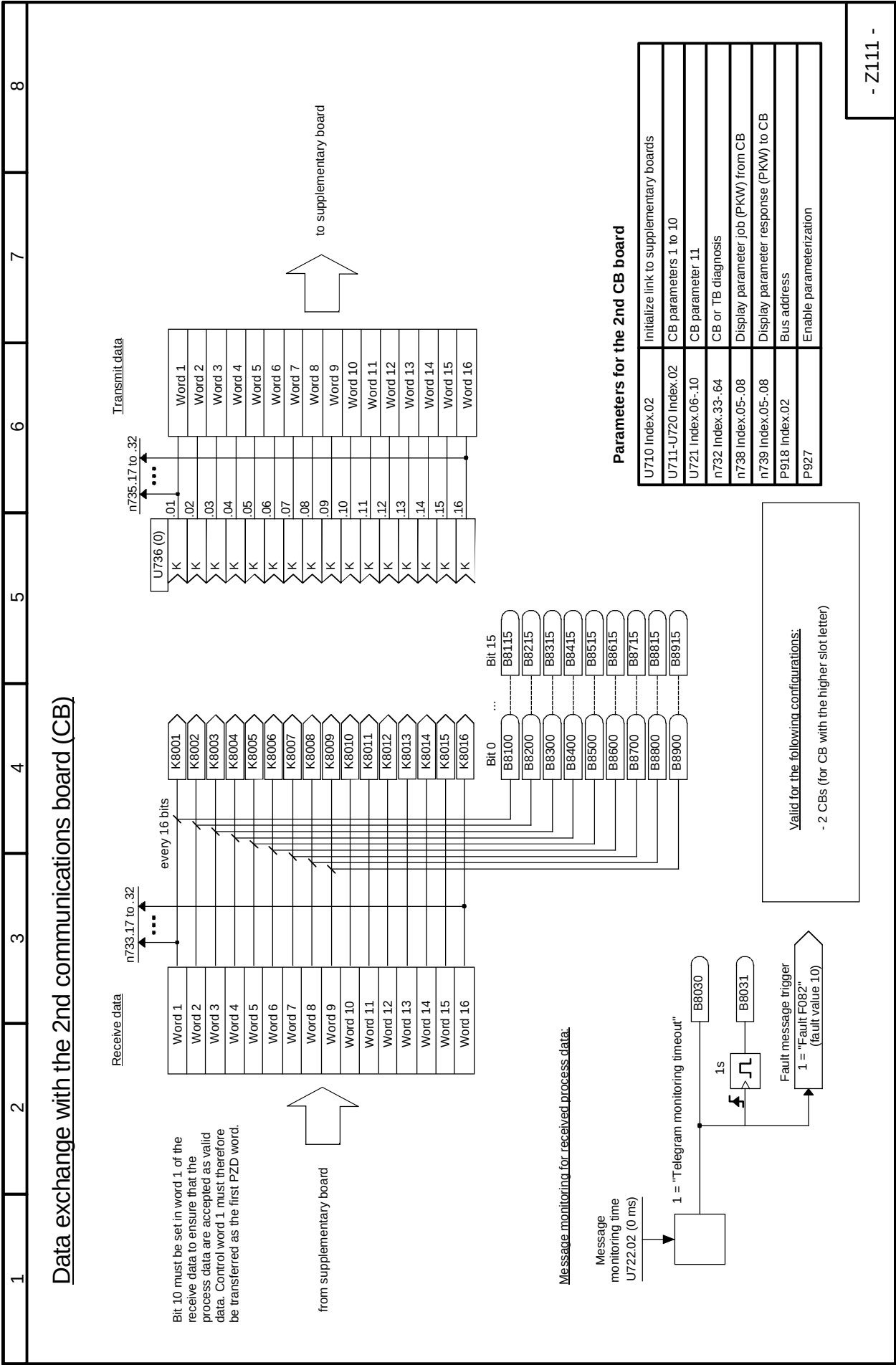
Sheet Z100 Table of contents

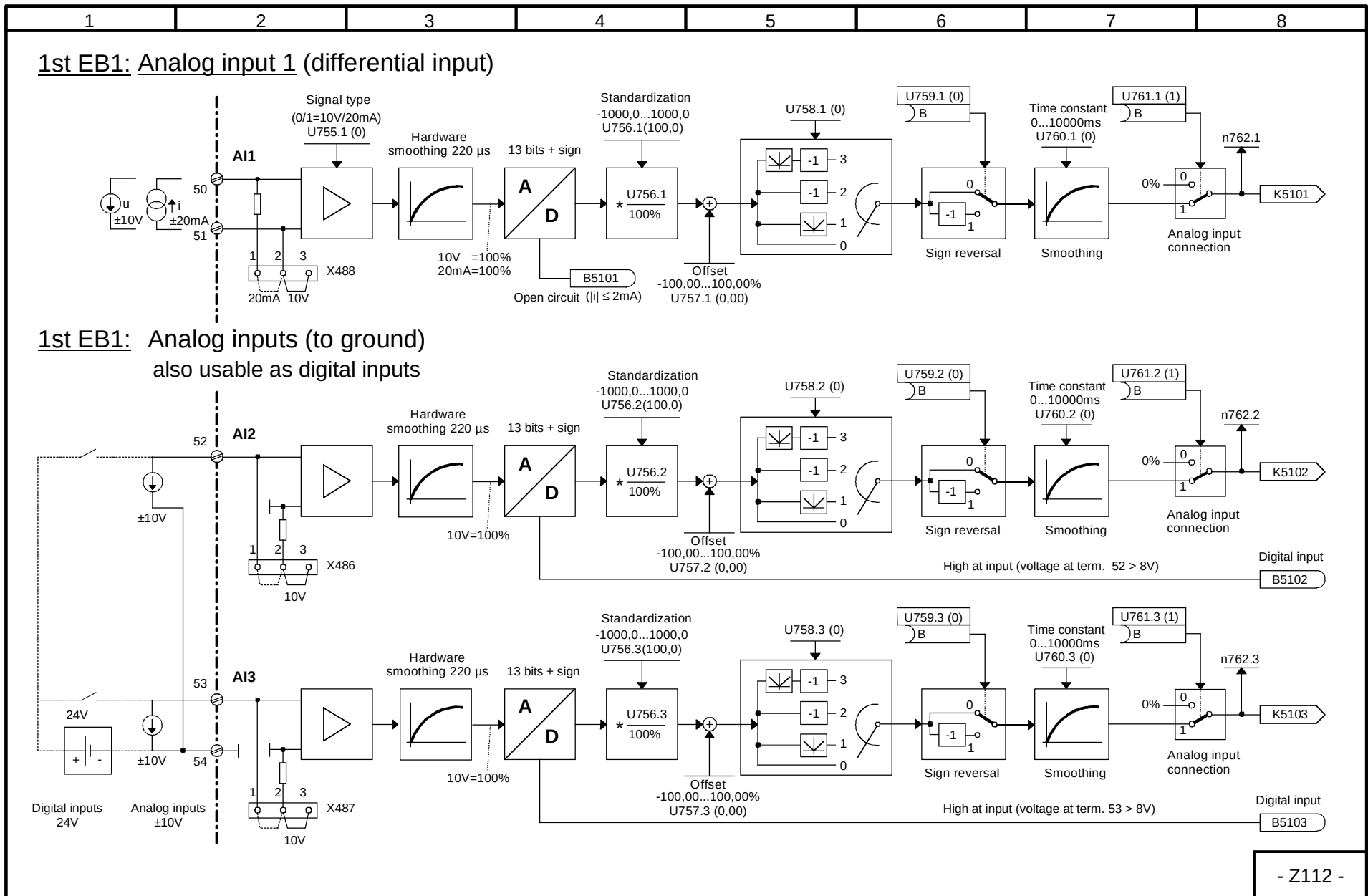
1	2	3	4	5	6	7	8
Function diagram SIMOREG 6RA70 - Contents of optional supplementary boards							
<u>Content</u>				<u>Sheet</u>			
Data exchange with a technology board (TB) or the 1st communication board (CB)				Z110			
Data exchange with the 2nd communication board (CB)				Z111			
1st EB1 analog inputs				Z112			
1st EB1 analog outputs				Z113			
1st EB1 bidirectional inputs/outputs, digital inputs				Z114			
2nd EB1 analog inputs				Z115			
2nd EB1 analog outputs				Z116			
2nd EB1 bidirectional inputs/outputs, digital inputs				Z117			
1st EB2 analog input, digital inputs, relay outputs				Z118			
2nd EB2 analog input, digital inputs, relay outputs				Z119			
SBP pulse encoder evaluation				Z120			
SIMOLINK board configuration, diagnosis				Z121			
SIMOLINK board receiving, transmitting				Z122			
OP1S operator panel				Z123			
							- Z100 -

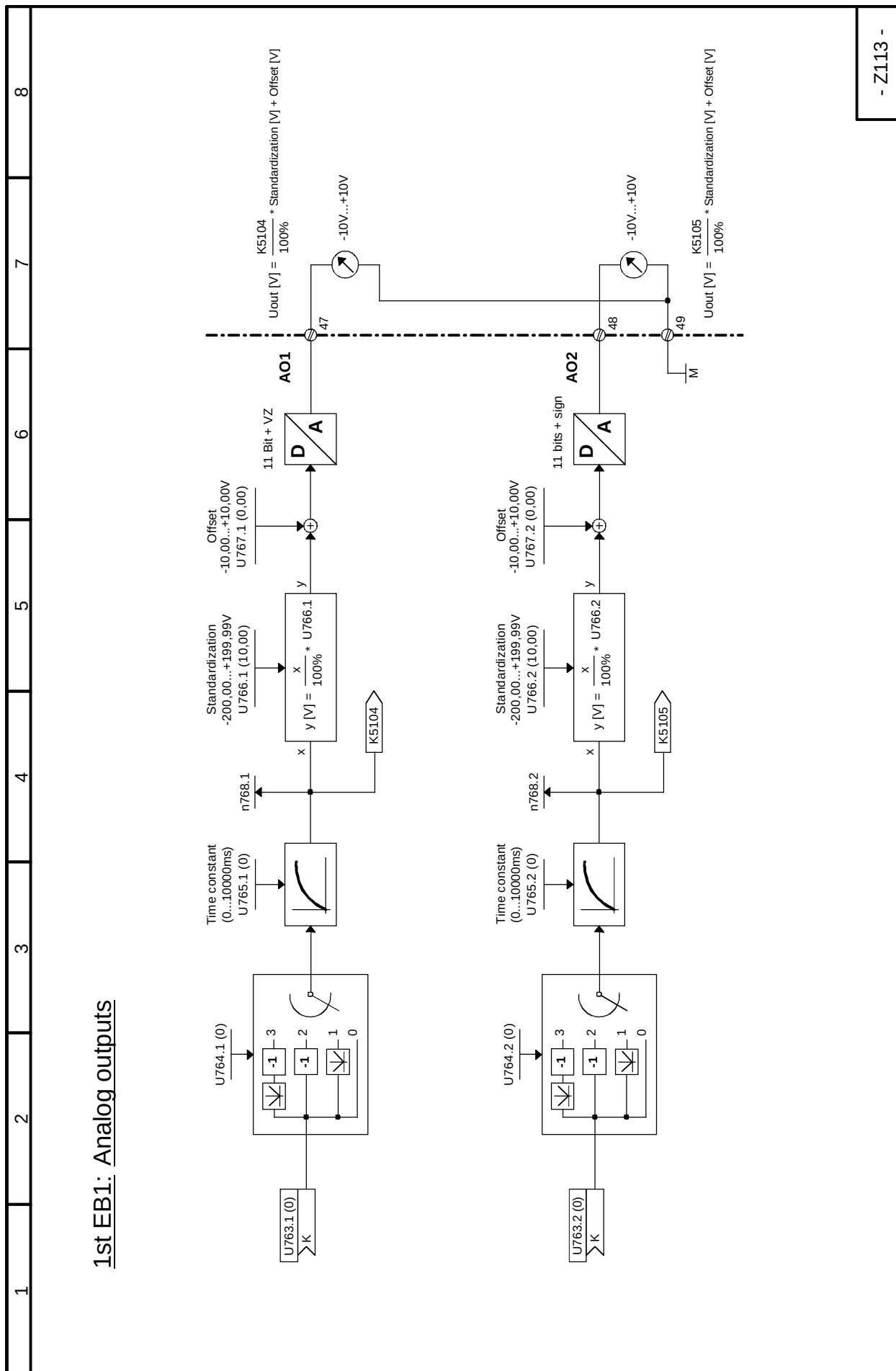
Data exchange with a technology board (TB) or the 1st communications board (CB)



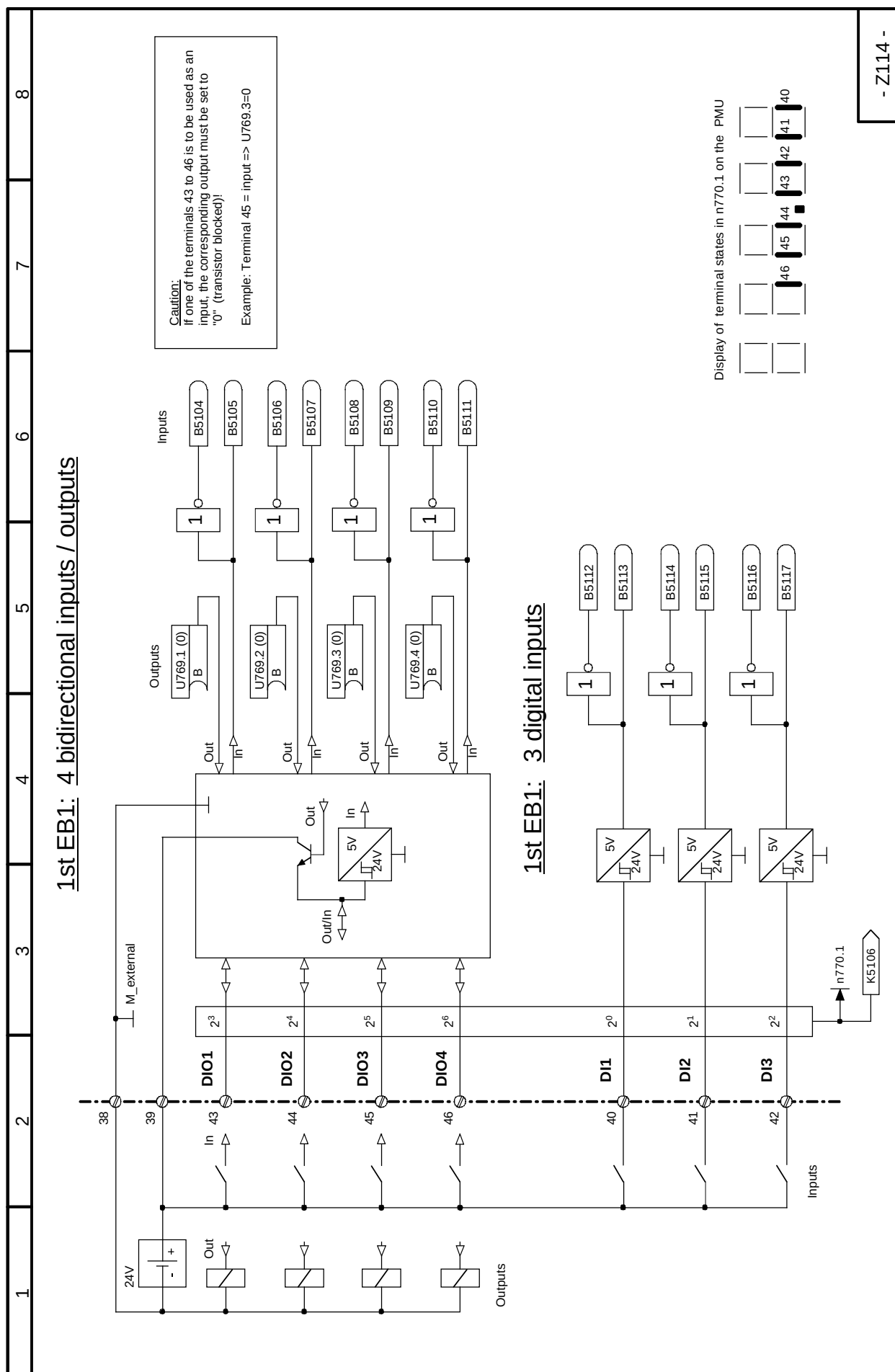
- Z110 -



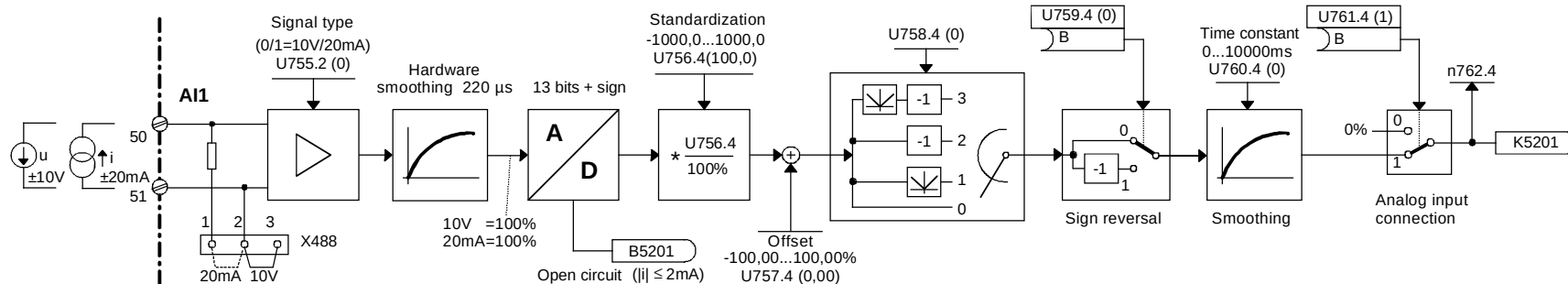


Sheet Z113 1st EB1: Analog outputs

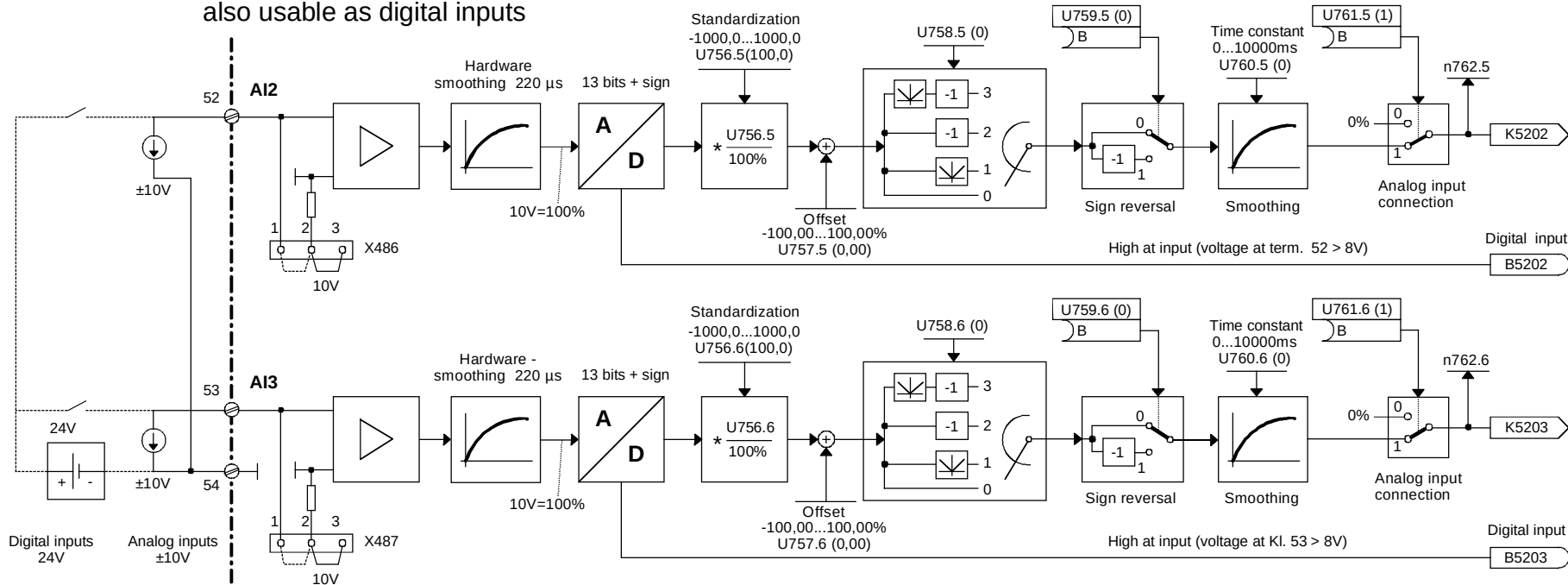
- Z113 -

Sheet Z114 1st EB1: 4 bidirectional inputs- / outputs, 3 digital inputs


2nd EB1: Analog input 1 (differential input)

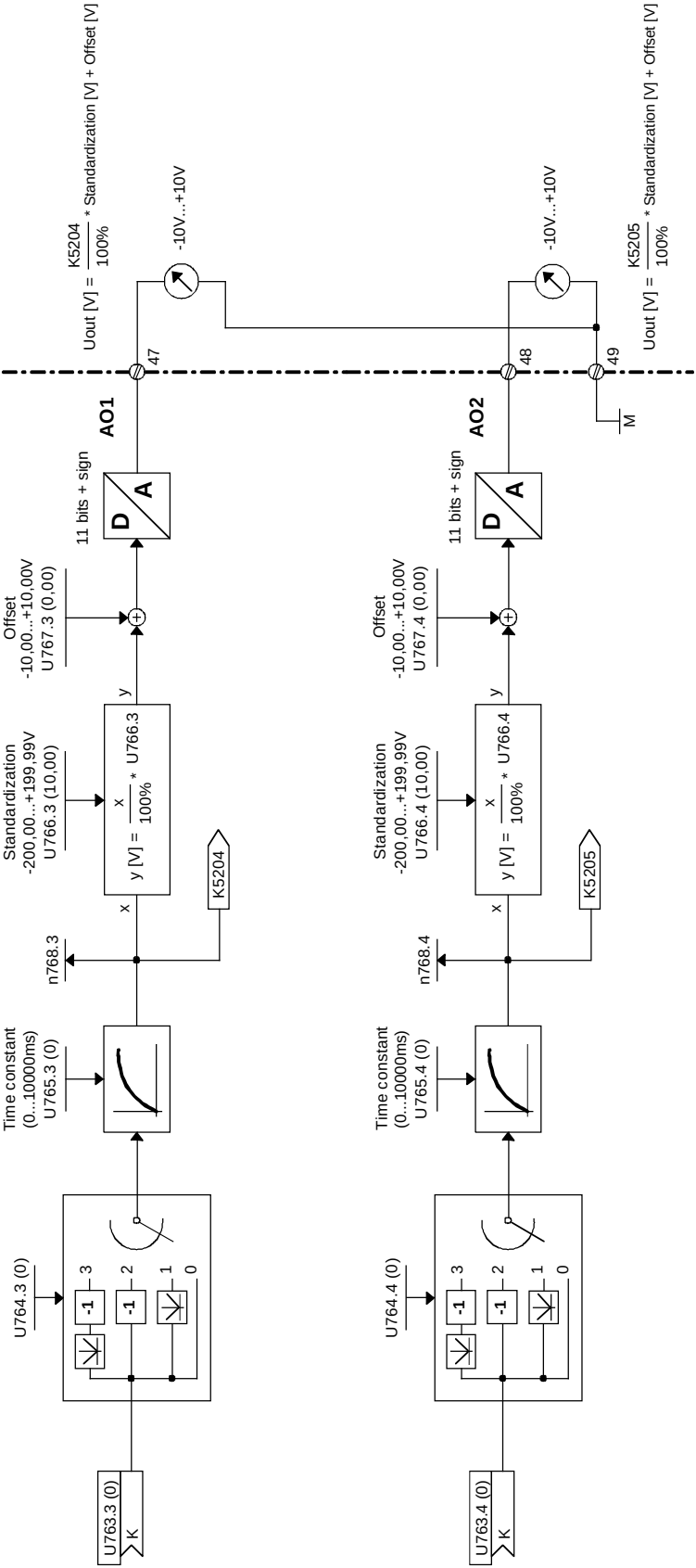


2nd EB1: Analog inputs (to ground) also usable as digital inputs

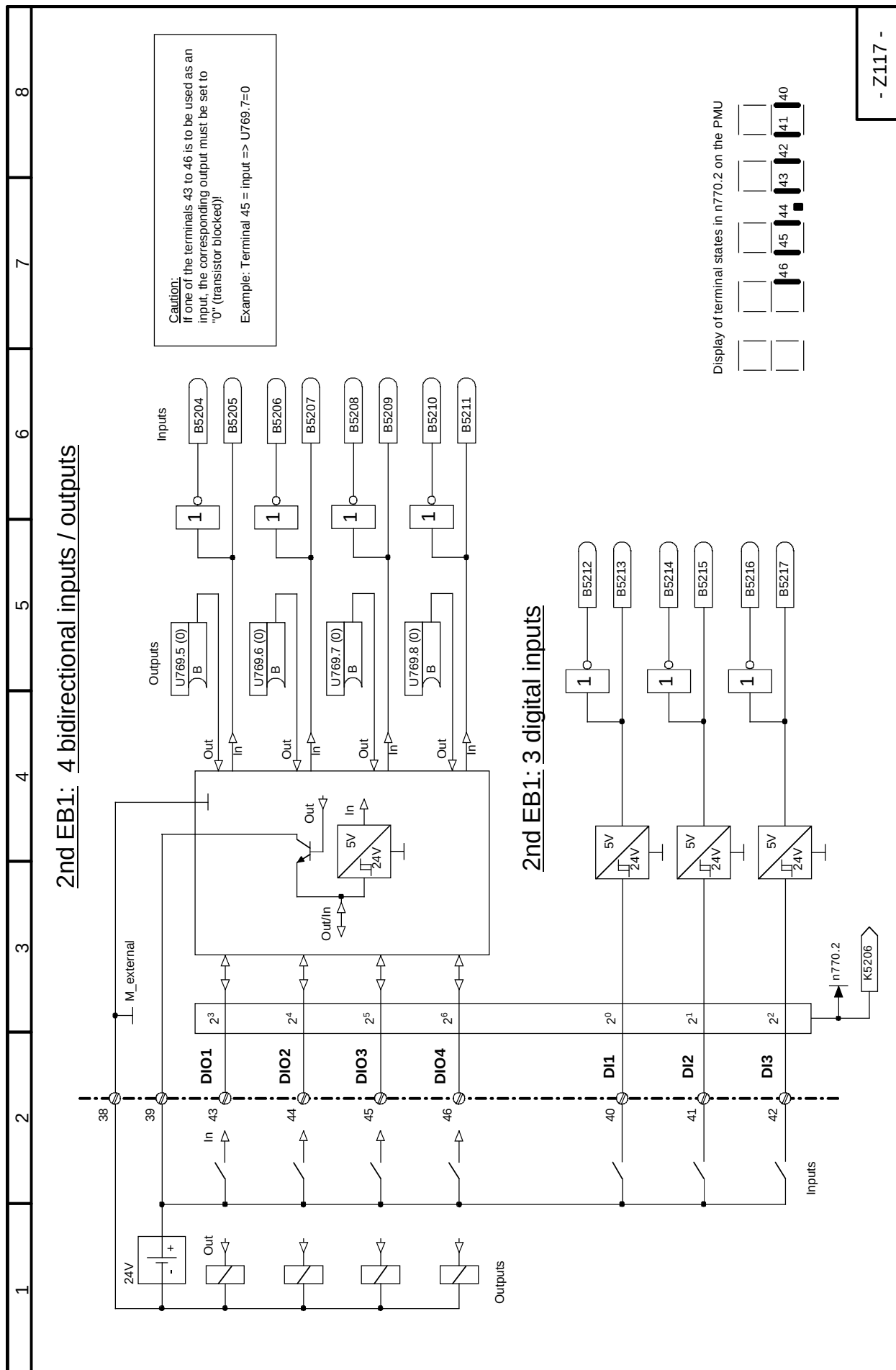


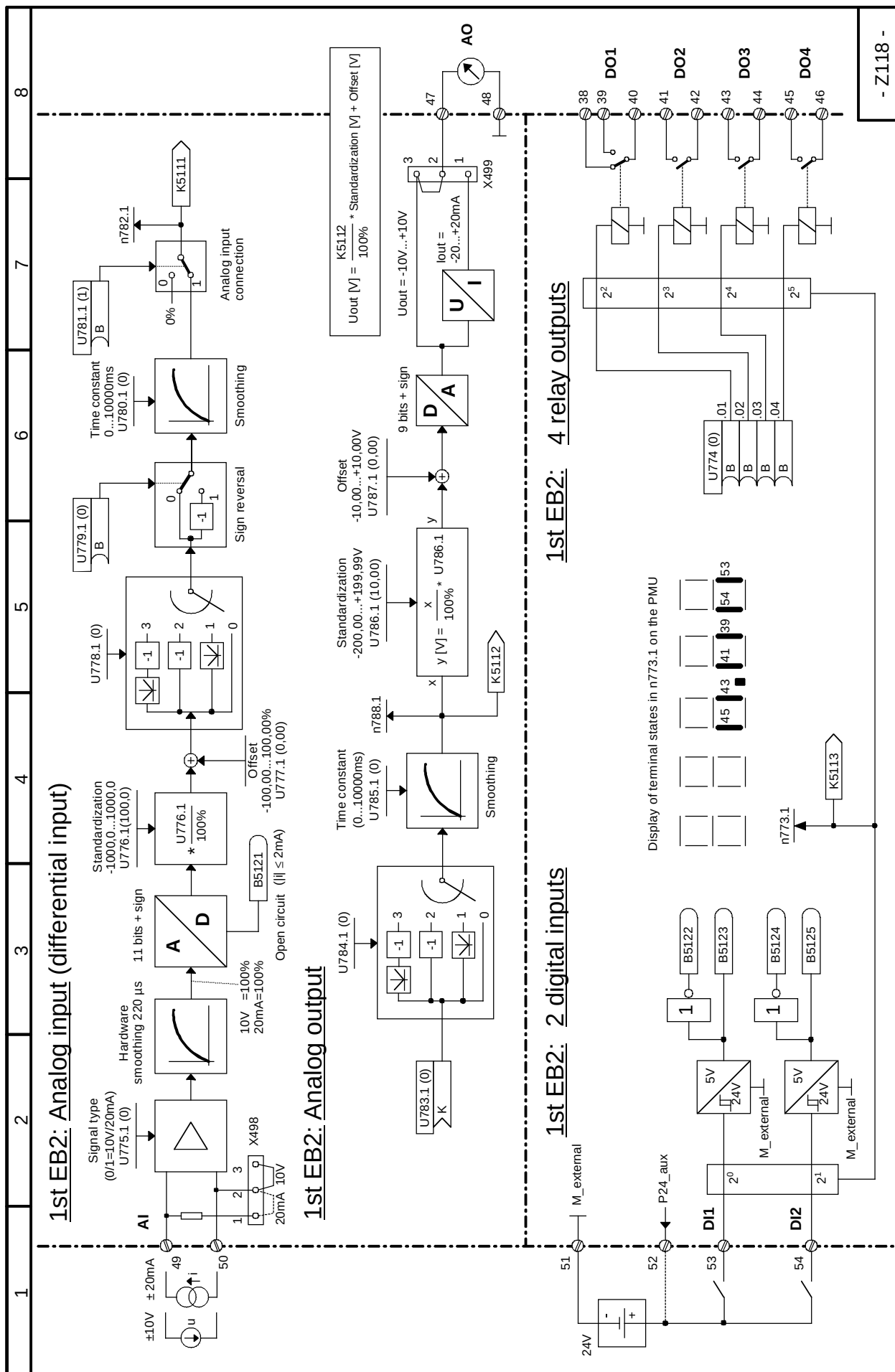
- Z115 -

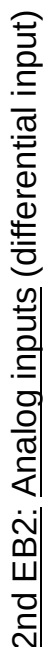
2nd EB1: Analog outputs



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Sheet Z117 2nd EB1: 4 bidirectional inputs- / outputs, 3 digital inputs





2nd EB2: Analog output

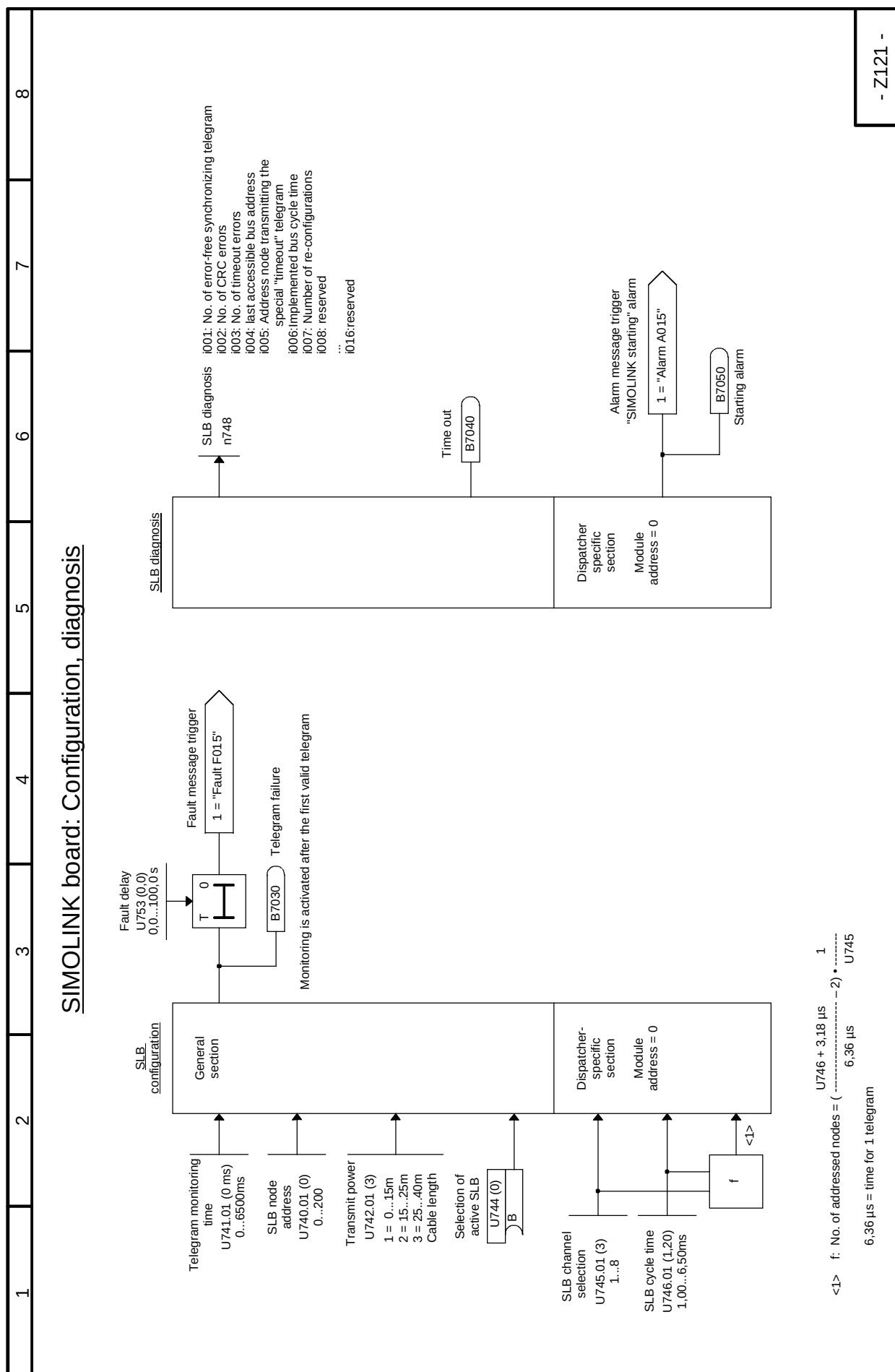
2nd EB2: 2 digital inputs

2nd EB2: 4 Relay outputs

- Z120 -

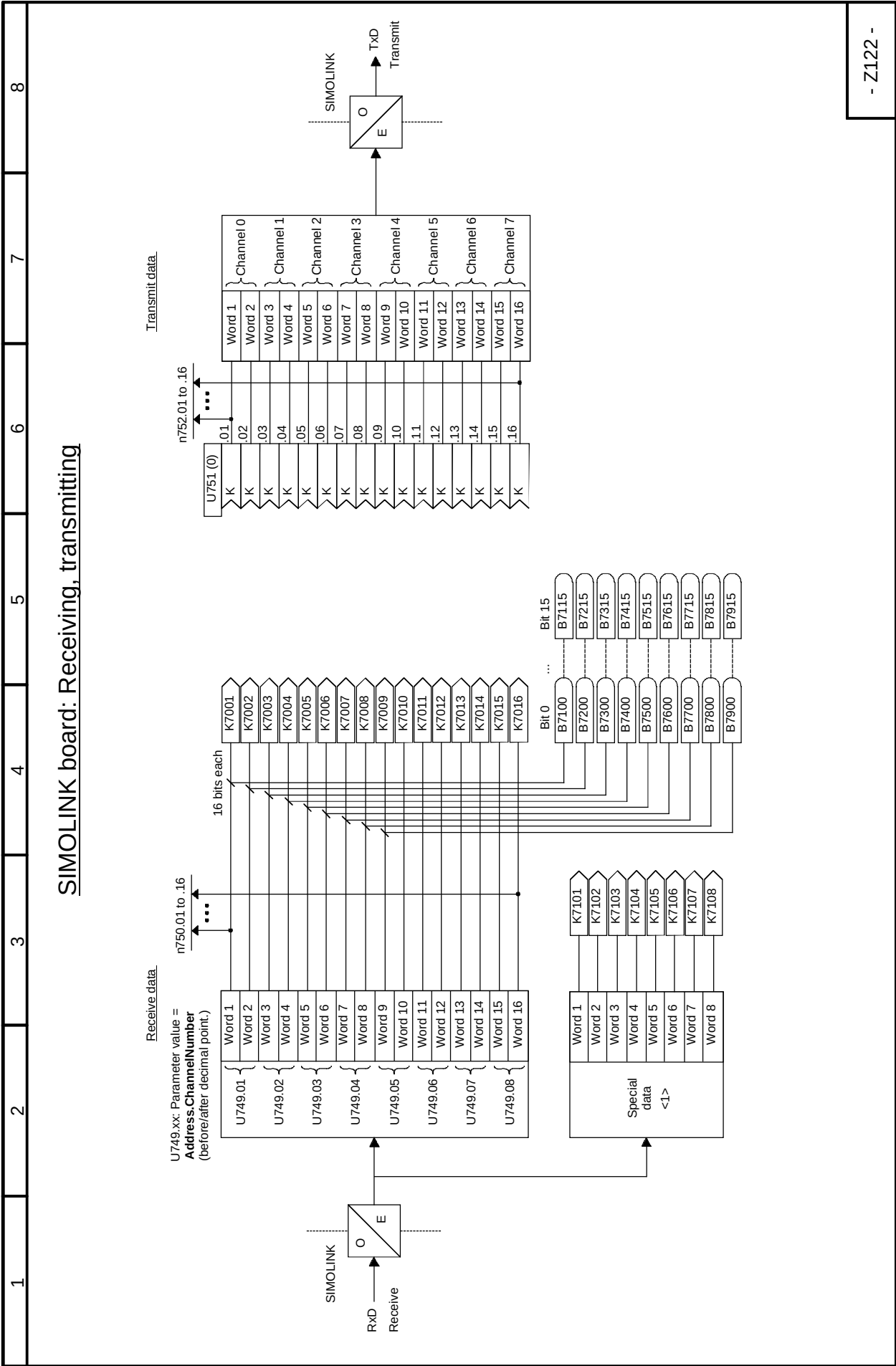


Sheet Z121 SIMOLINK board: Configuration, diagnosis



- Z121 -

Sheet Z122 SIMOLINK board: Receiving, transmitting



- Z122 -

