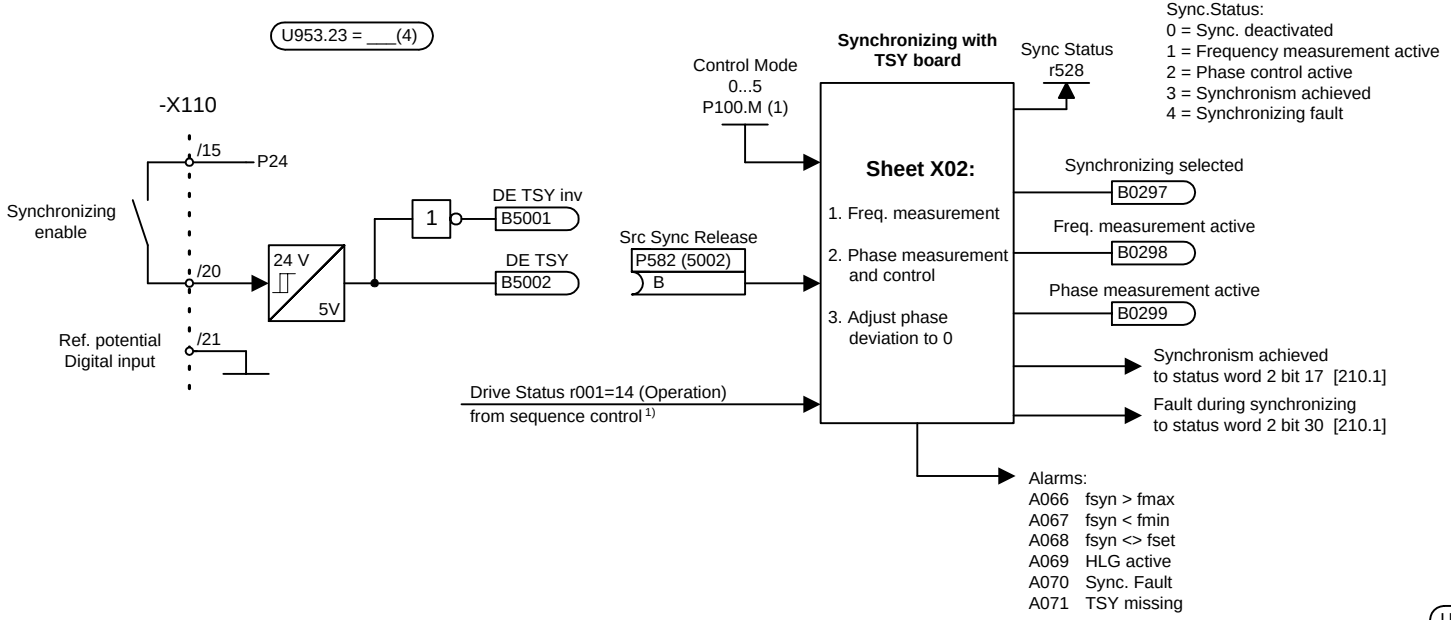
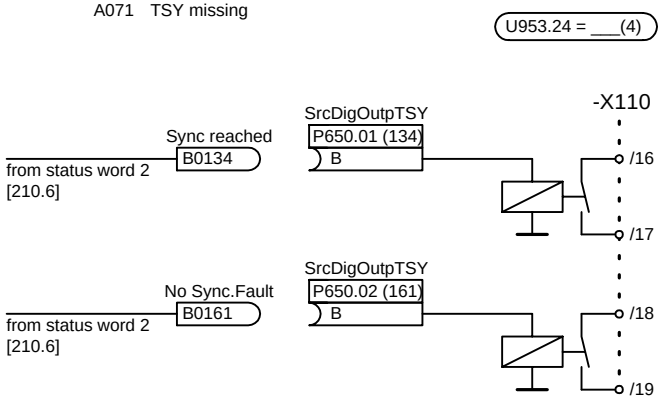
MASTERDRIVES VC function diagram - List of contents of the supplementary boards

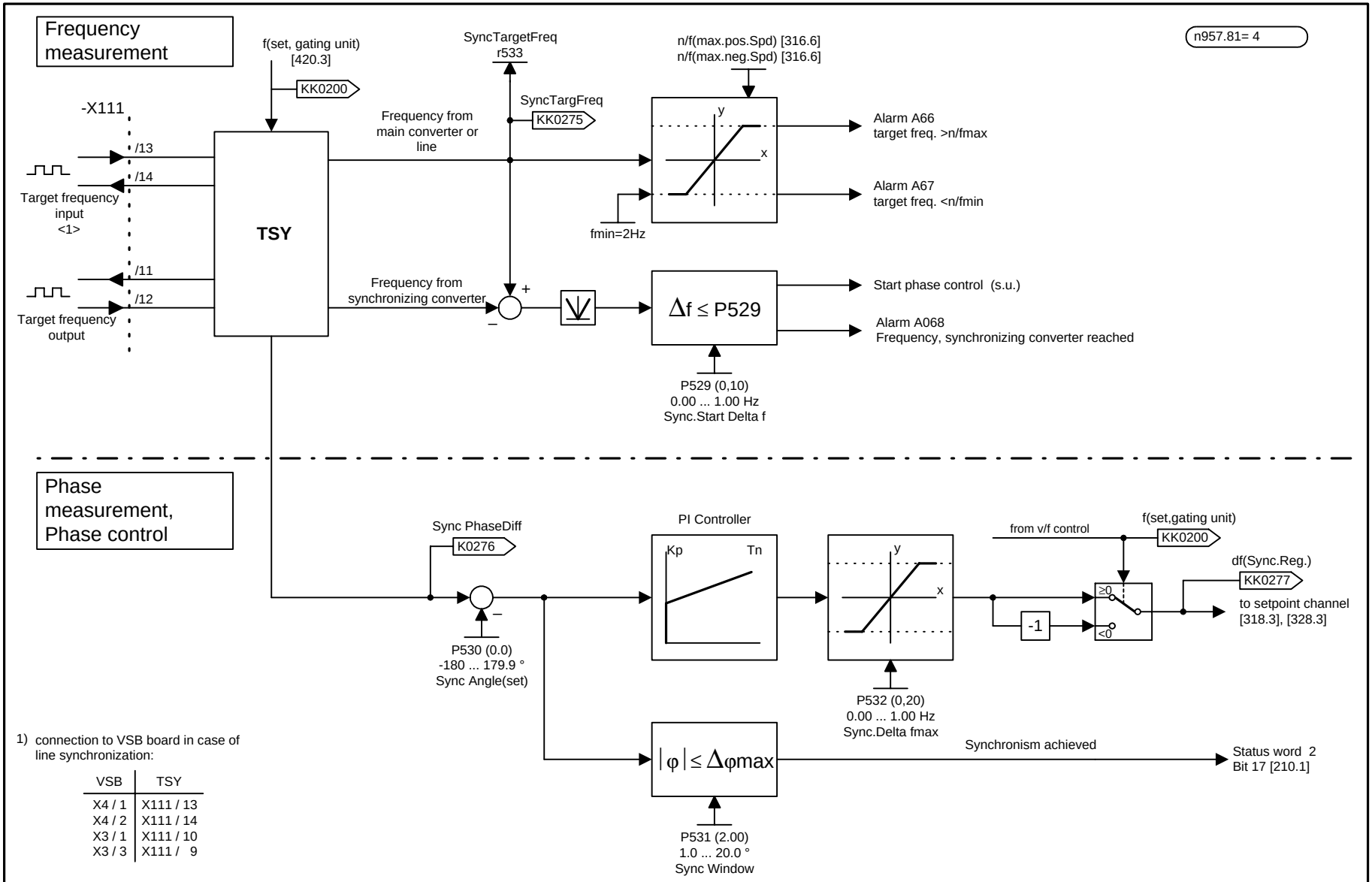




Synchronizing:
- Converter (P534 = 1):
  The reference frequency of the synchronizing converter has to be run to the frequency of the main converter (target frequency).
- Line (P534 = 2):
  The synchronizing enable shall be granted
  after pulse enable in the case of the starting converter,
  before pulse enable in the case of the return converter.
  The direction of rotation enable is granted in P571 or P572.

1) The sequence control is the internal control (software) for implementing the drive status (r001).

1	2	3	4	5	6	7	8
TSY Board					fp_vc_X01_e.vsd	Function diagram	- X01 -
				Not with Compact PLUS!	24.07.01	MASTERDRIVES VC	

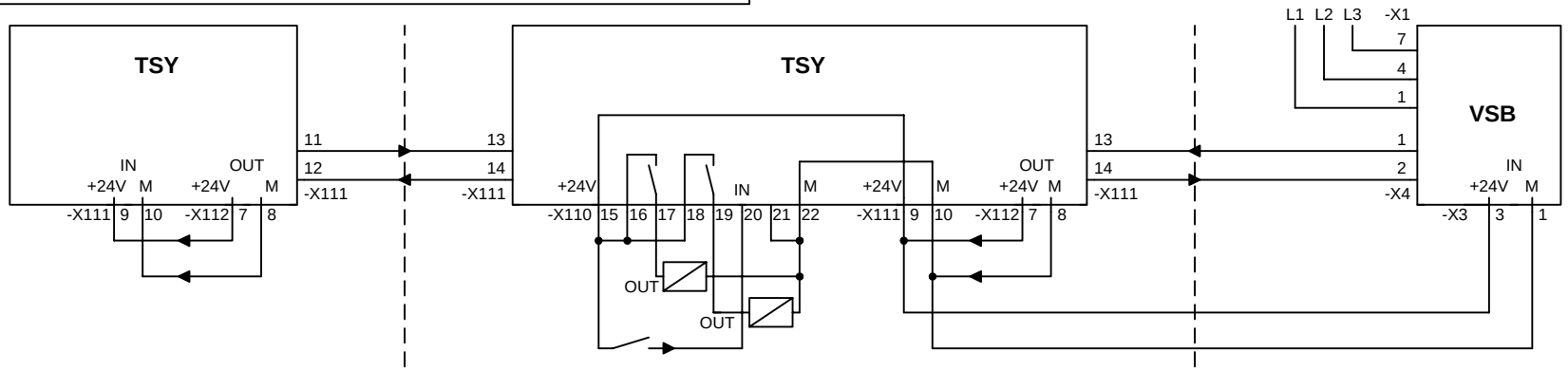


1) connection to VSB board in case of line synchronization:

VSB	TSY
X4 / 1	X111 / 13
X4 / 2	X111 / 14
X3 / 1	X111 / 10
X3 / 3	X111 / 9

Connection example for digital inputs/outputs with internal power supply

n957.82 = 4

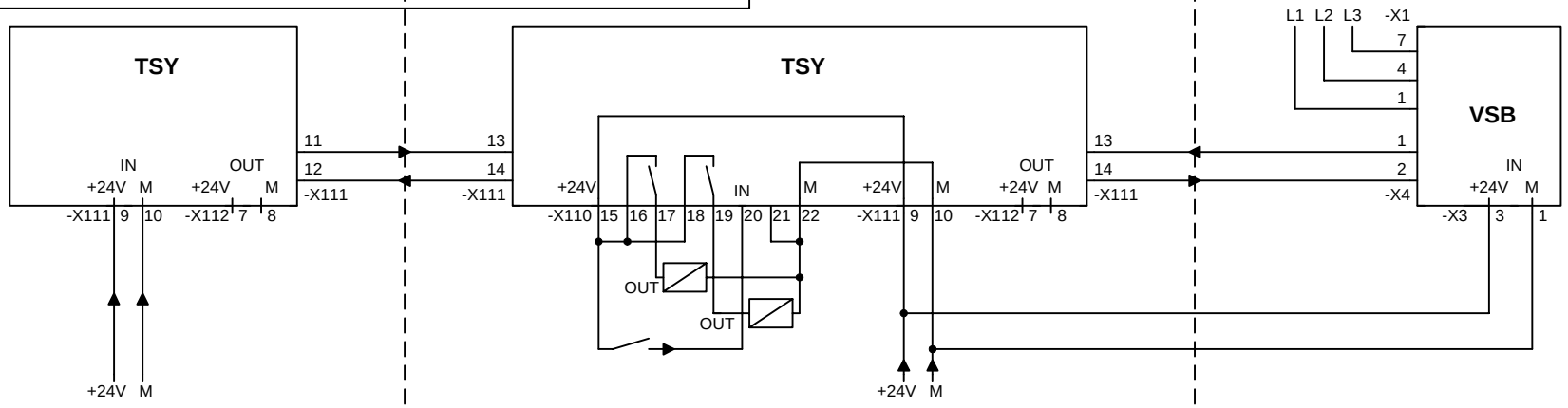


For converter synchronization (main converter)

Synchronizing converter (ramp-up or ramp-down converter)

For line synchronization (voltage sensing)

Connection example for digital inputs/outputs with external power supply

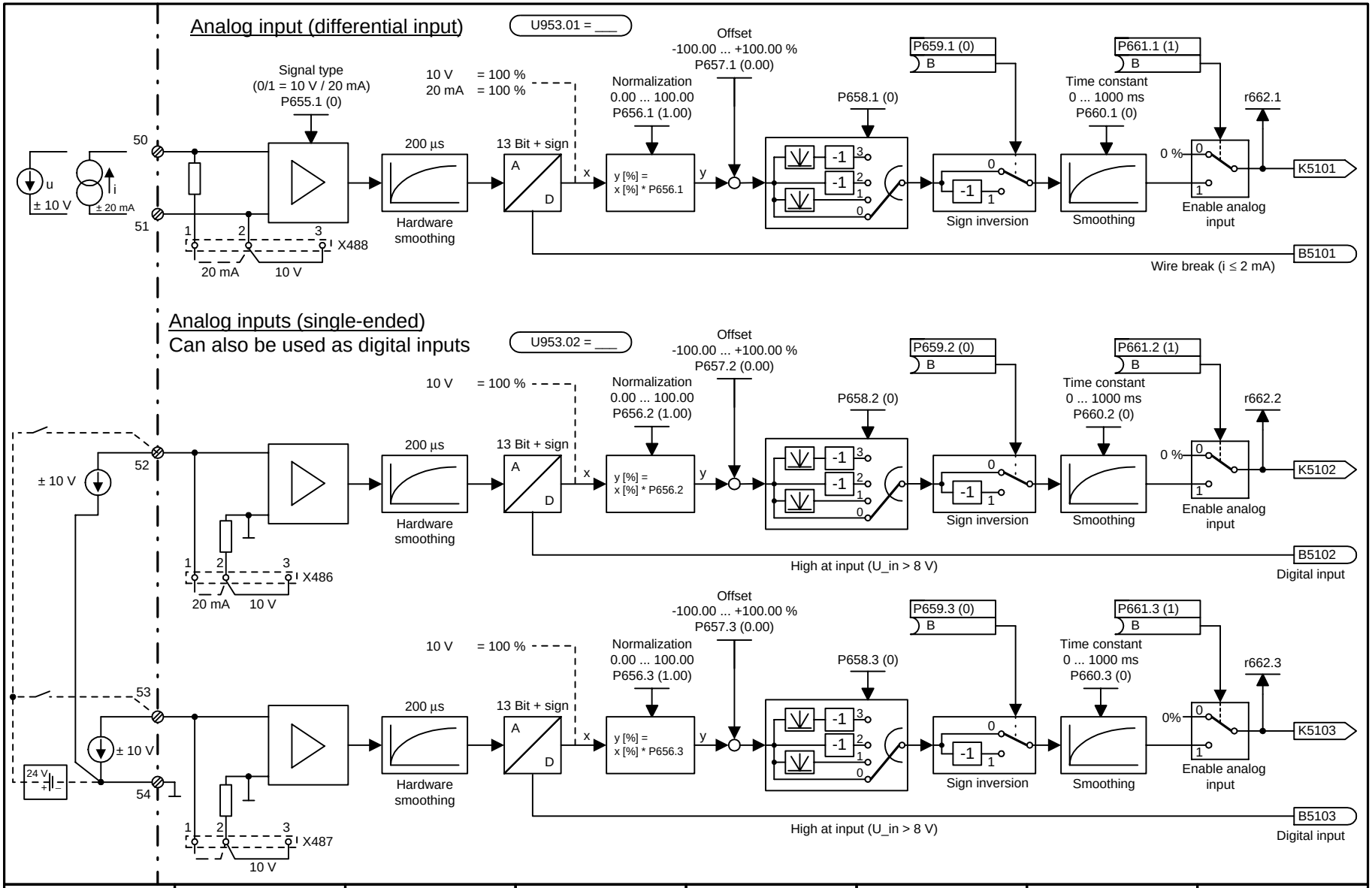


For converter synchronization (main converter)

Synchronizing converter (ramp-up or ramp-down converter)

For line synchronization (voltage sensing)

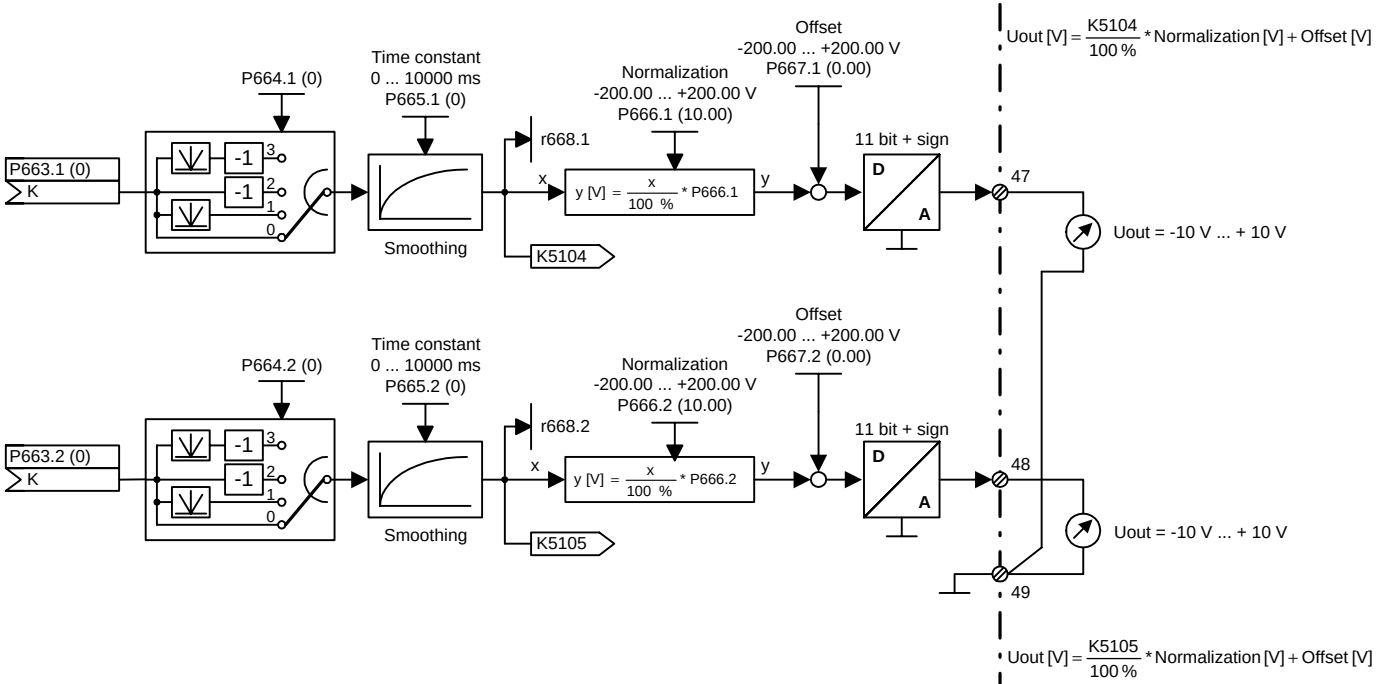
1	2	3	4	5	6	7	8
TSY Module					fp_vc_X03_e.vsd	Function Diagram	- X03 -
Connection Examples				Not with Compact PLUS!	24.07.01	MASTERDRIVES VC	

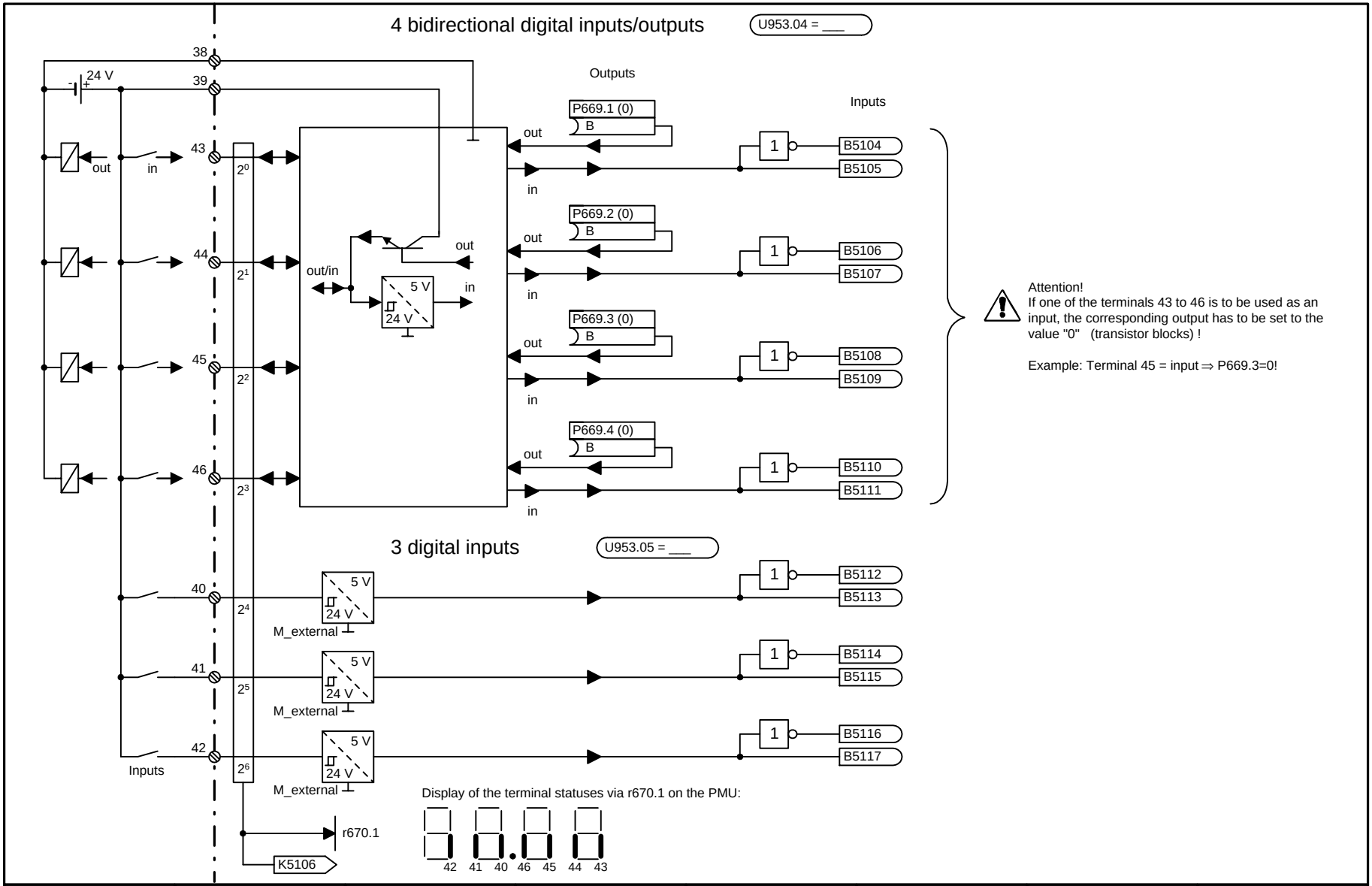


1	2	3	4	5	6	7	8
Terminal expansion EB1 No. 1					fp_vc_Y01_e.vsd	Function diagram	- Y01 -
Analog inputs, combined digital inputs					01.08.1998	MASTERDRIVES VC	

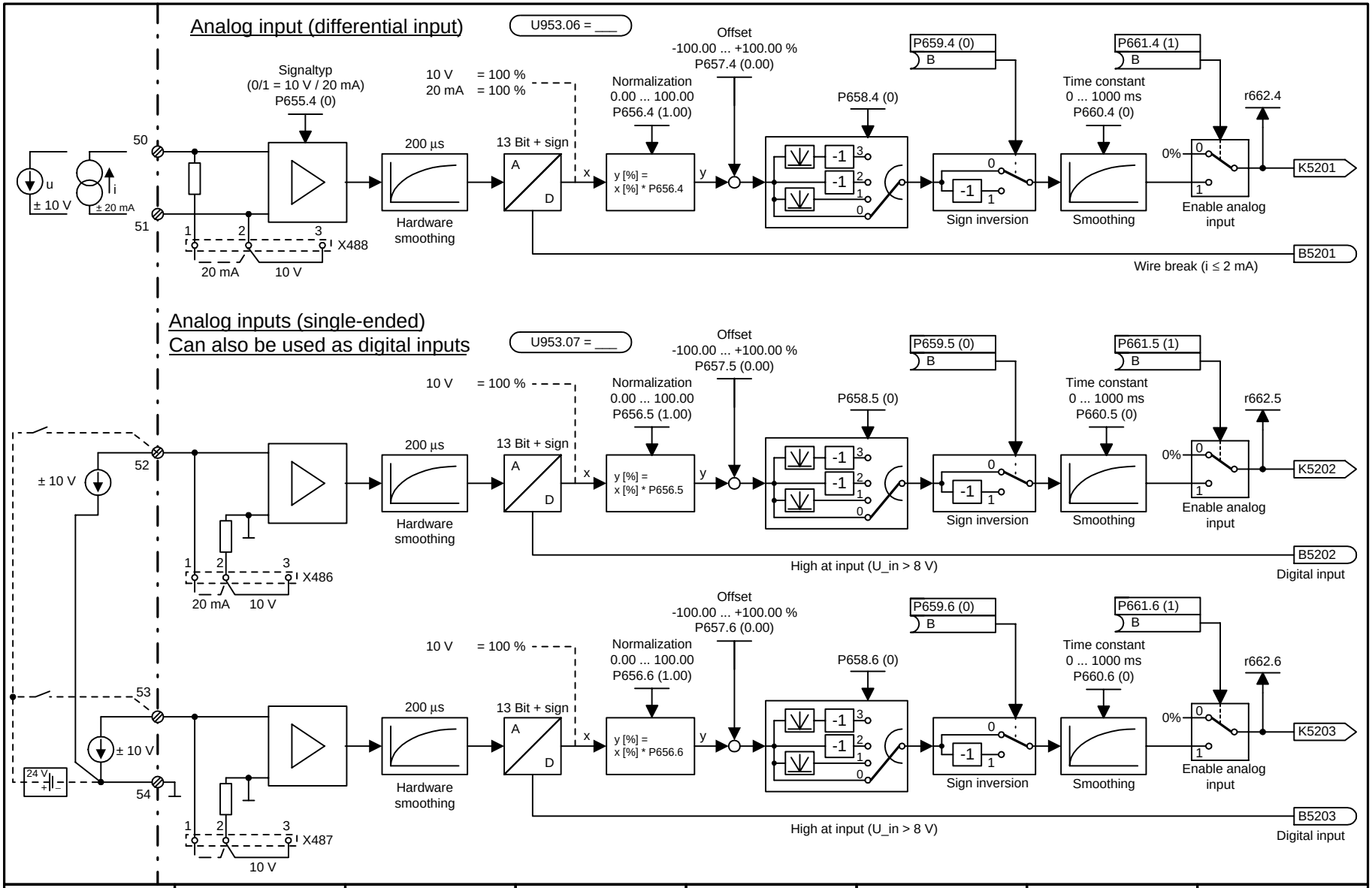
Analog outputs

U953.03 = ___





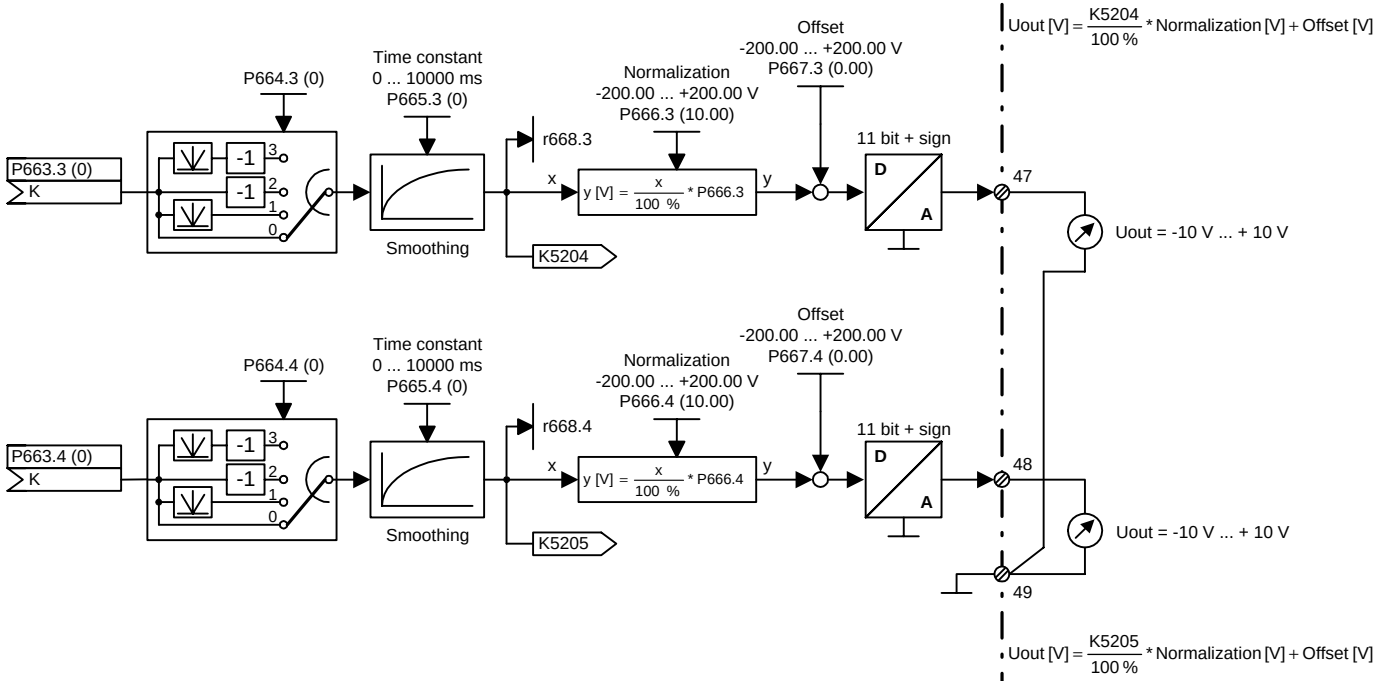
1	2	3	4	5	6	7	8
Terminal expansion EB1 No. 1					fp_vc_Y03_e.vsd	Function diagram	- Y03 -
Digital inputs/outputs					01.08.1998	MASTERDRIVES VC	



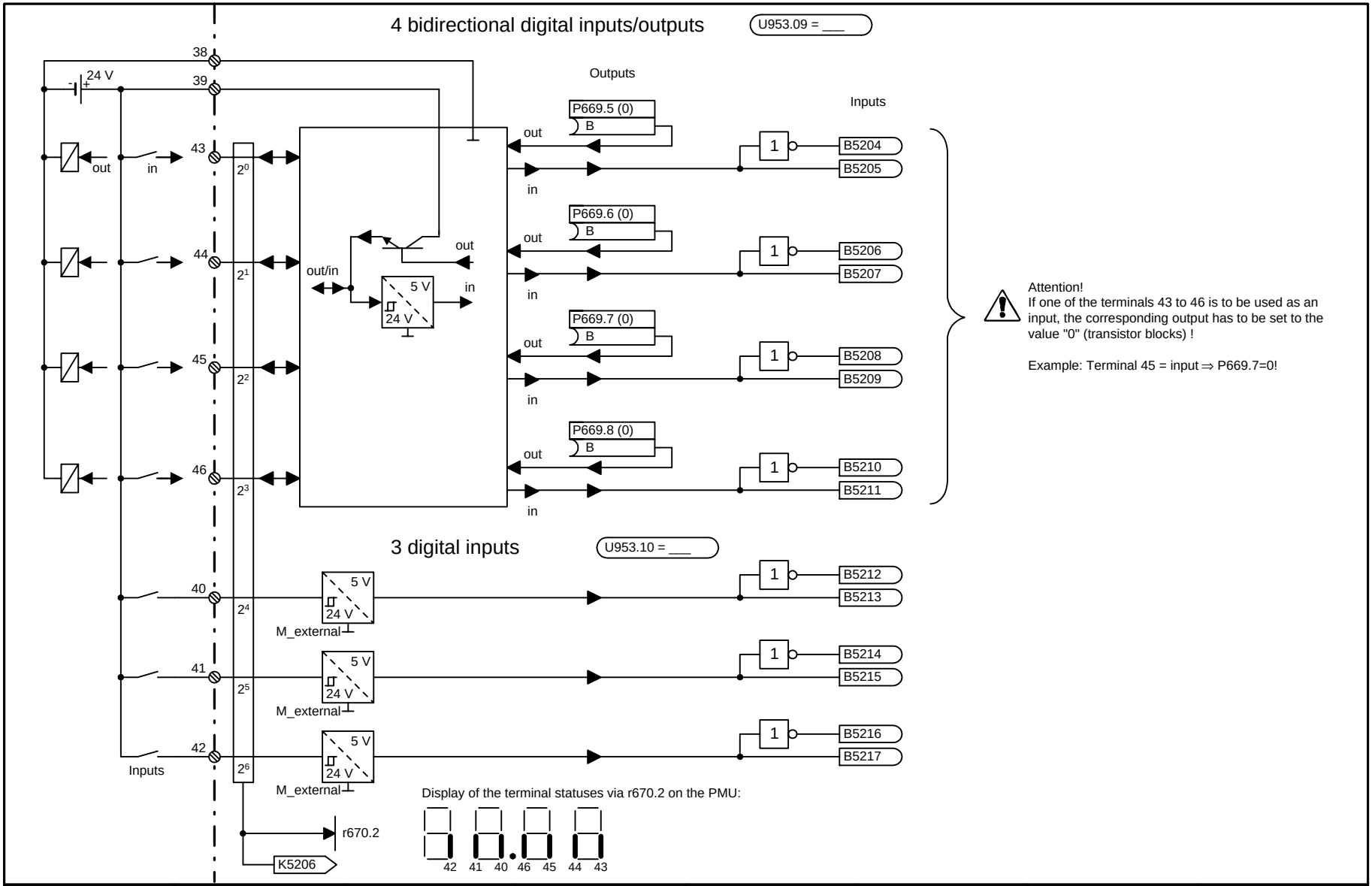
1	2	3	4	5	6	7	8
Terminal expansion EB1 No. 2					fp_vc_Y04_e.vsd	Function diagram	- Y04 -
Analog inputs, combined digital inputs					01.08.1998	MASTERDRIVES VC	

Analog outputs

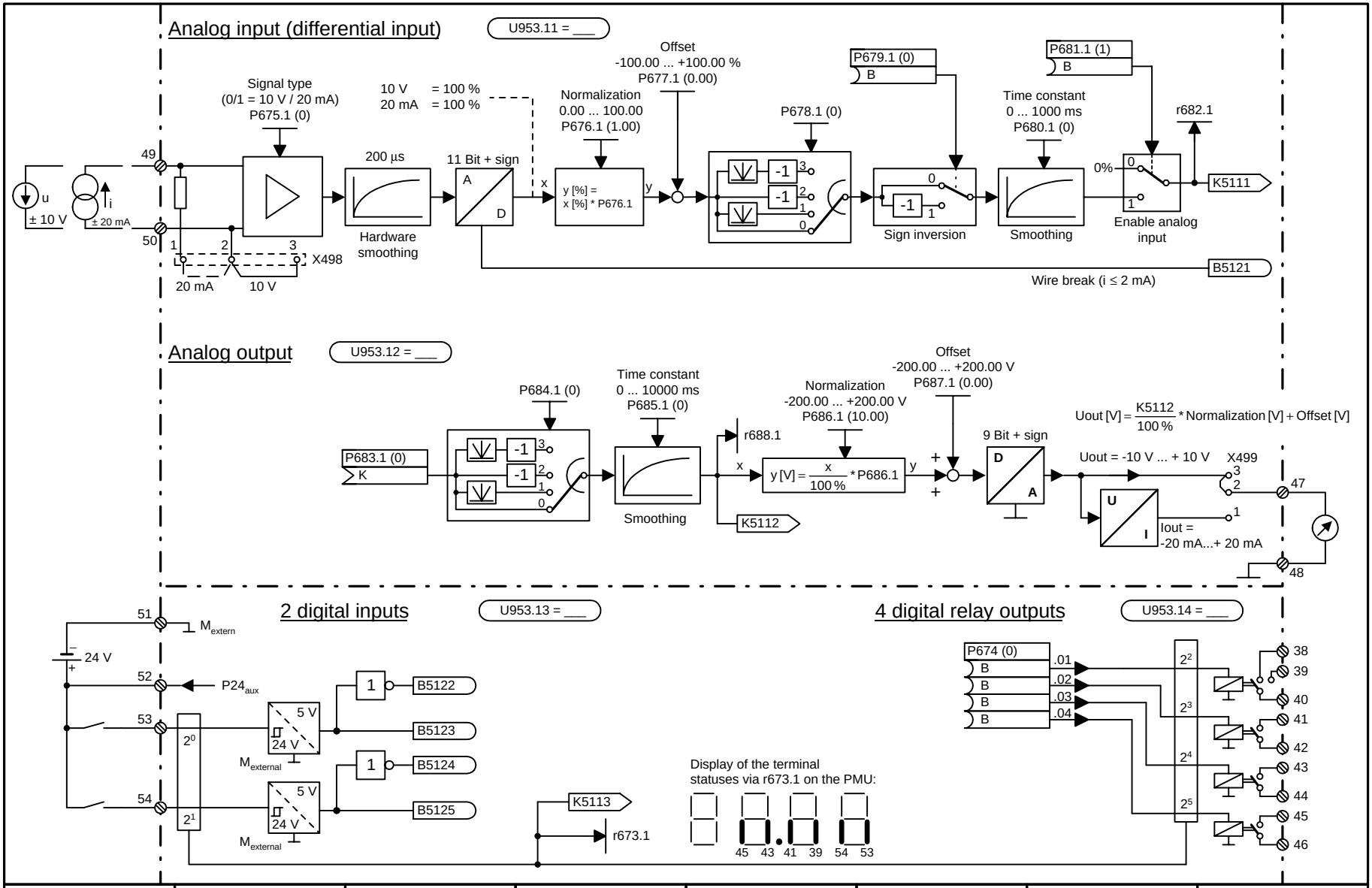
U953.08 = ___



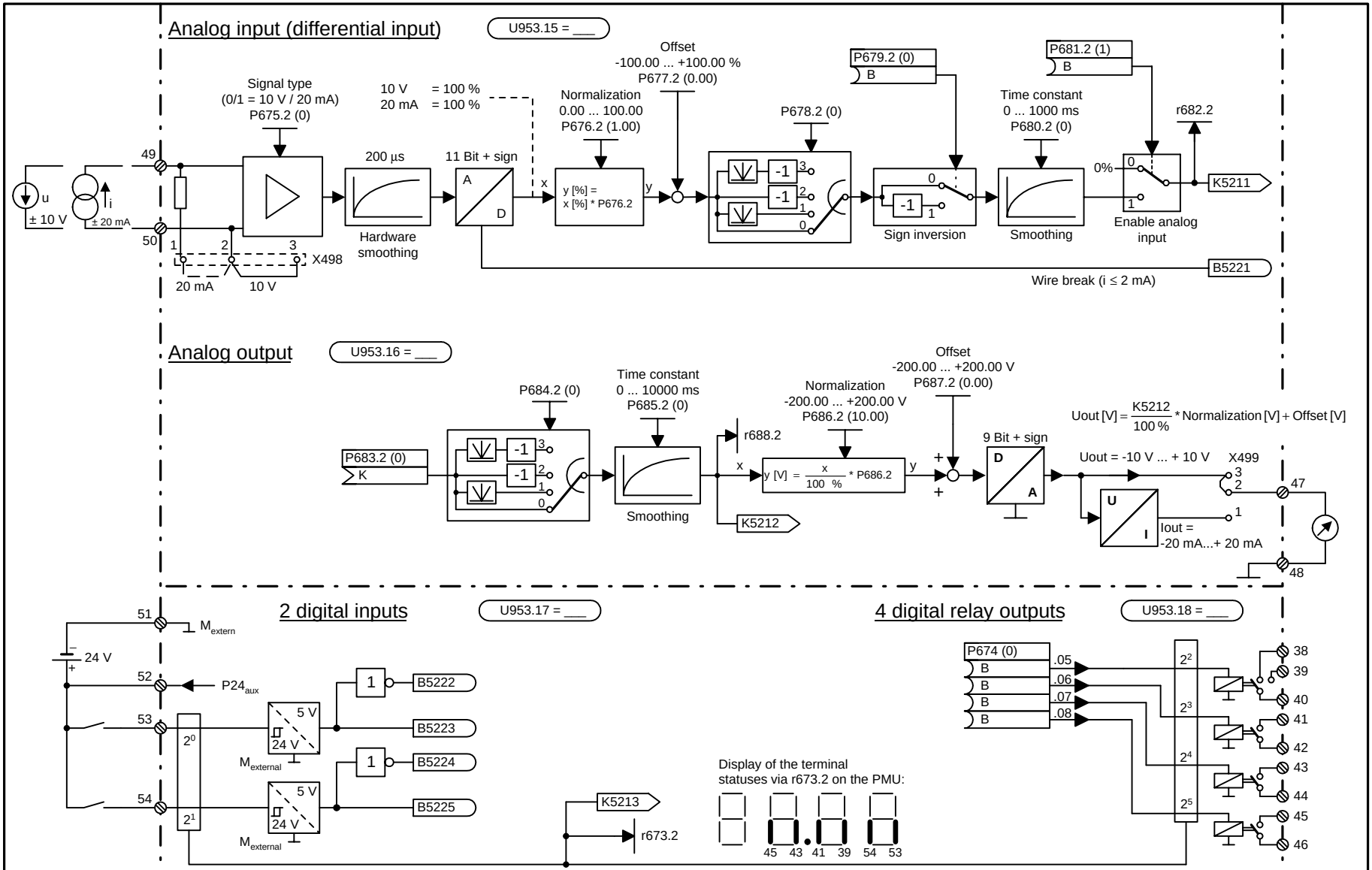
1	2	3	4	5	6	7	8
Terminal expansion EB1 No. 2					fp_vc_Y05_e.vsd	Function diagram	- Y05 -
Analog outputs					12.10.01	MASTERDRIVES VC	



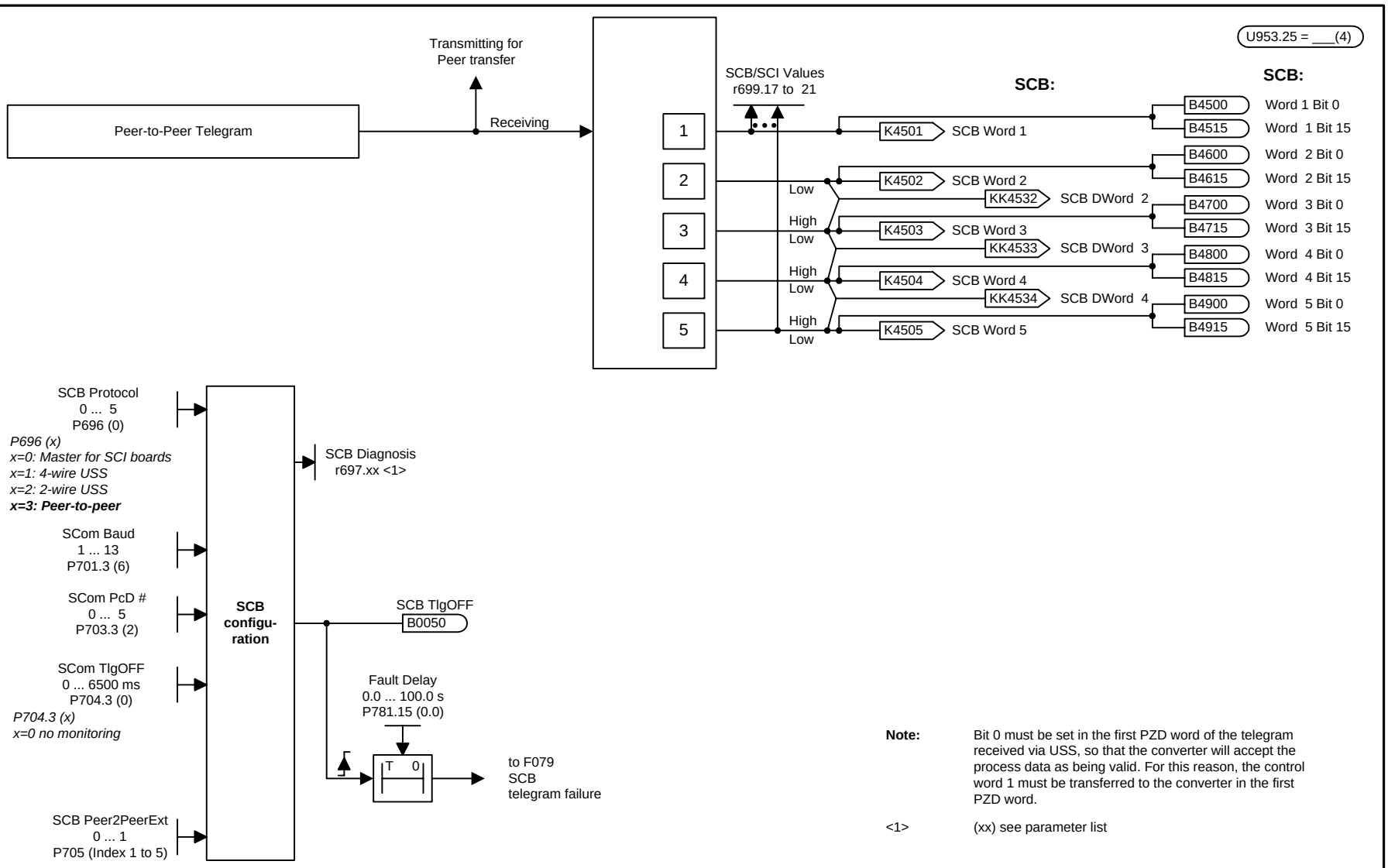
1	2	3	4	5	6	7	8
Terminal expansion EB1 No. 2					fp_vc_Y06_e.vsd	Function diagram	- Y06 -
Digital inputs/outputs					01.08.1998	MASTERDRIVES VC	



1	2	3	4	5	6	7	8
Terminal expansion EB2 No. 1					fp_vc_Y07_e.vsd	Function diagram	- Y07 -
analog and digital inputs/outputs					12.10.01	MASTERDRIVES VC	



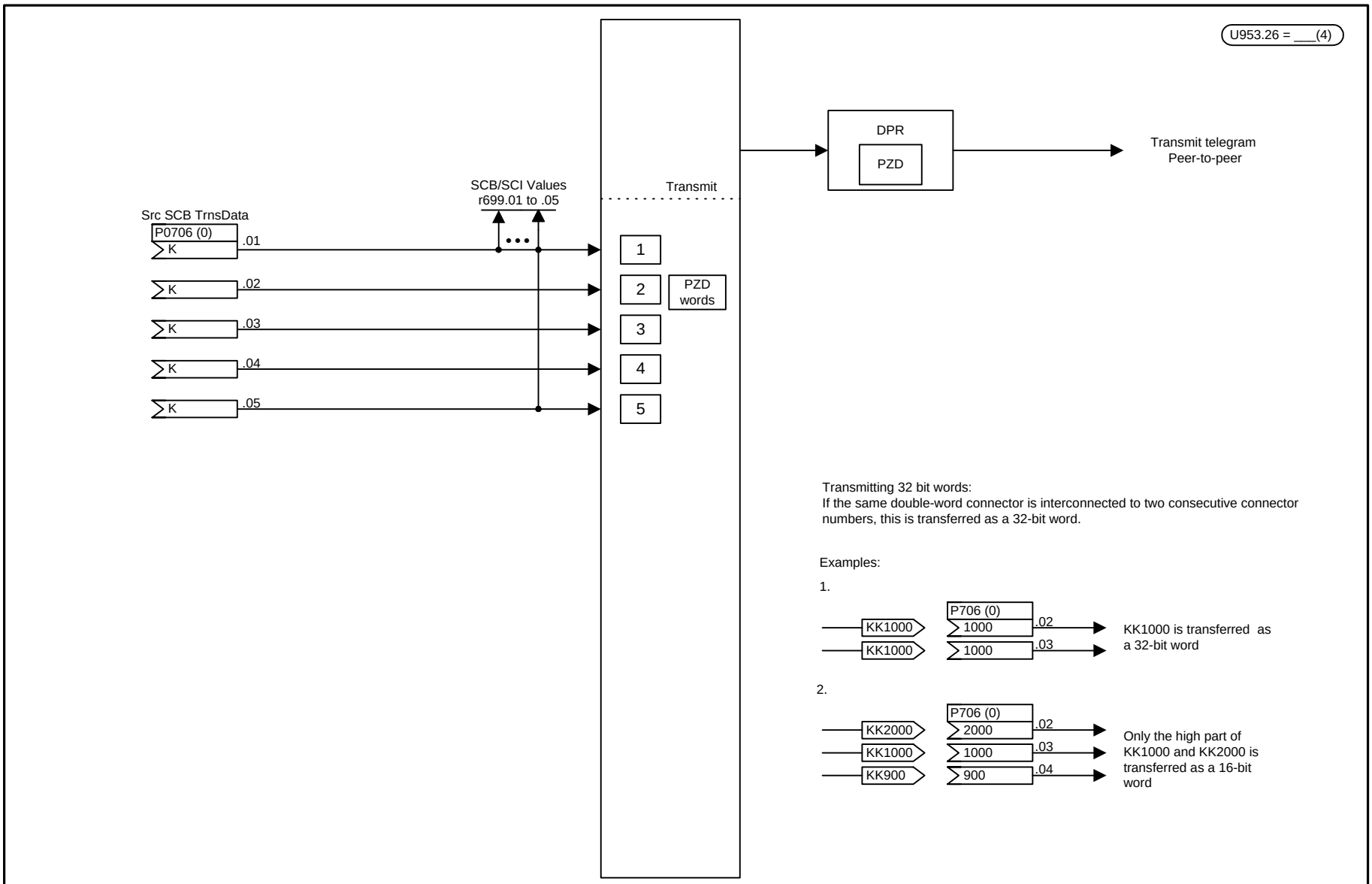
1	2	3	4	5	6	7	8
Terminal expansion EB2 No. 2					fp_vc_Y08_e.vsd	Function diagram	- Y08 -
analog and digital inputs/outputs					12.10.01	MASTERDRIVES VC	



Note: Bit 0 must be set in the first PZD word of the telegram received via USS, so that the converter will accept the process data as being valid. For this reason, the control word 1 must be transferred to the converter in the first PZD word.

<1> (xx) see parameter list

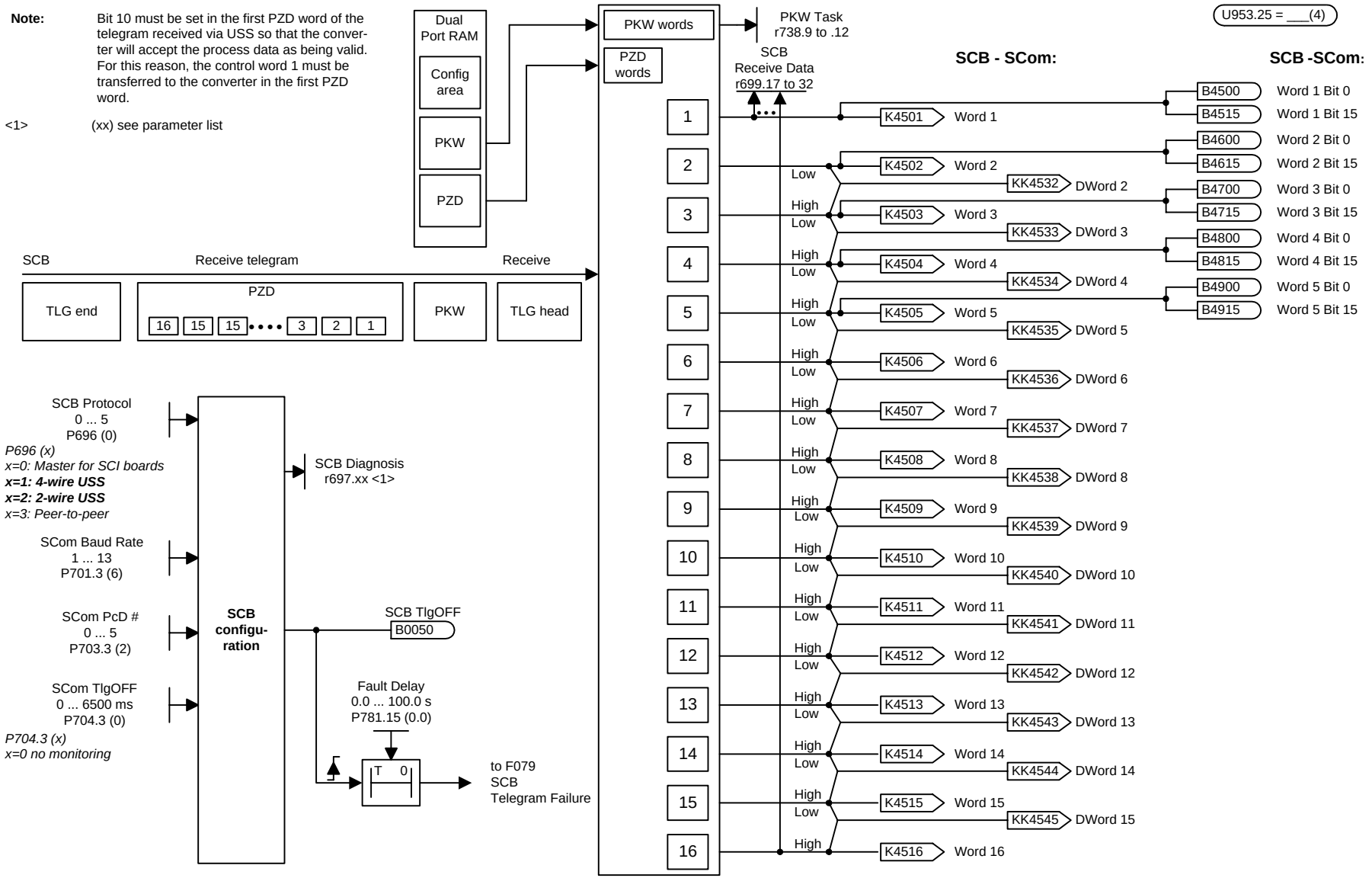
1	2	3	4	5	6	7	8
SCB1/2					fp_vc_Z01_e.vsd	Function diagram	- Z01 -
Peer-to-peer receiving				Not with Compact PLUS!	16.05.01	MASTERDRIVES VC	



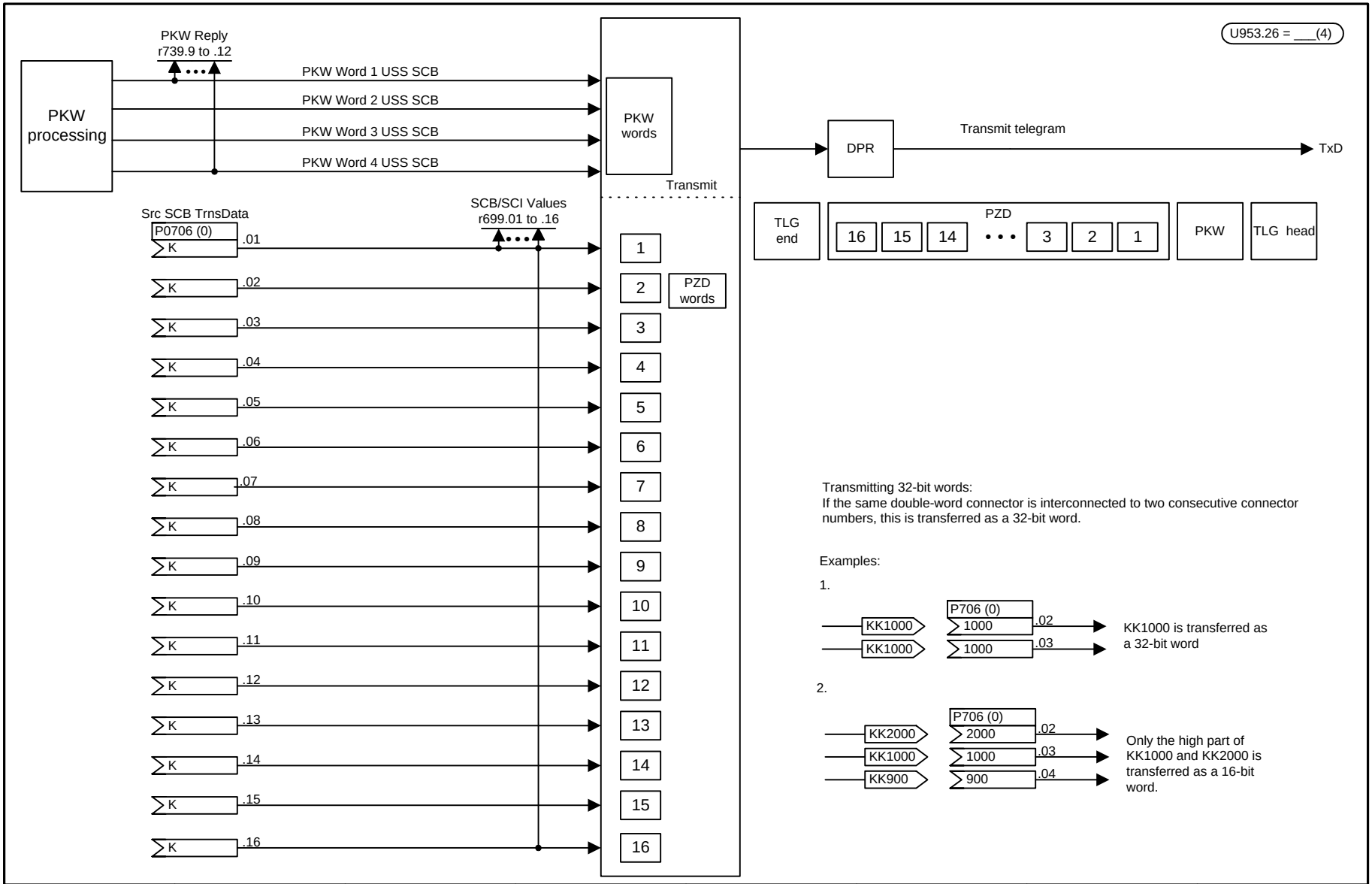
1	2	3	4	5	6	7	8
SCB1/2					fp_vc_Z02_e.vsd	Function diagram	- Z02 -
Peer-to-peer transmitting				Not with Compact PLUS!	16.05.01	MASTERDRIVES VC	

Note: Bit 10 must be set in the first PZD word of the telegram received via USS so that the converter will accept the process data as being valid. For this reason, the control word 1 must be transferred to the converter in the first PZD word.

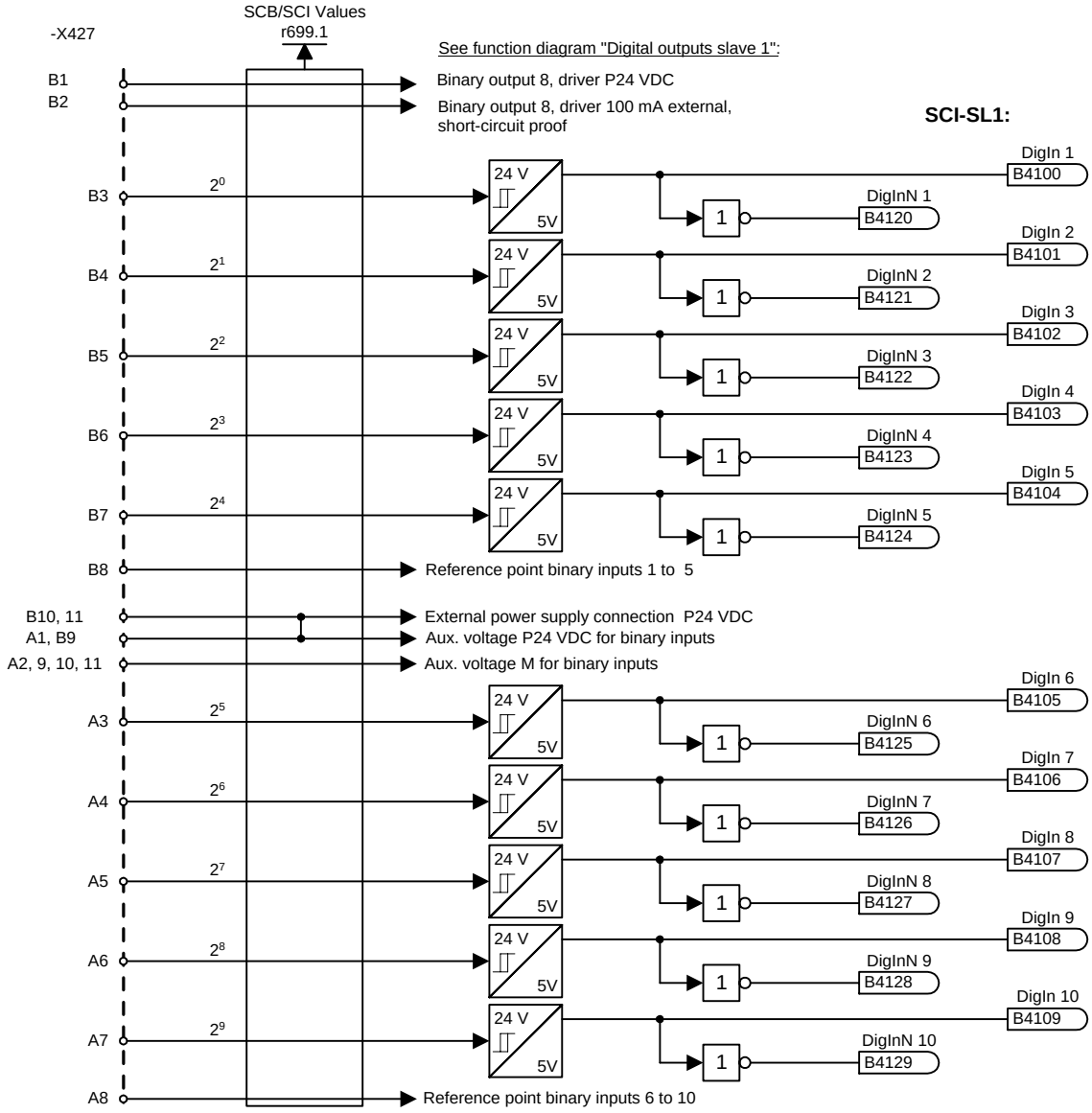
<1> (xx) see parameter list



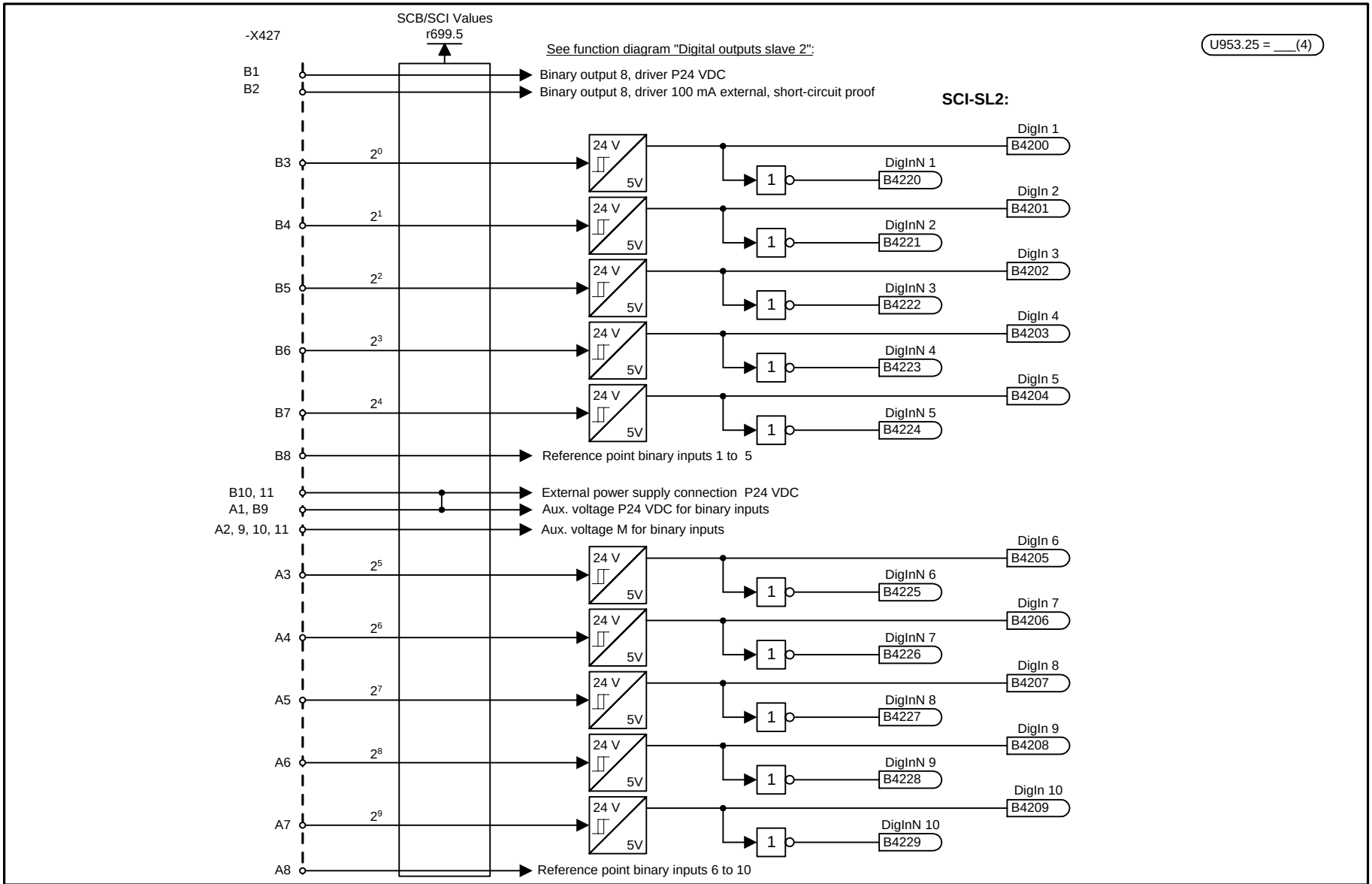
1	2	3	4	5	6	7	8
SCB2					fp_vc_Z05_e.vsd	Function diagram	- Z05 -
USS receiving				Not with Compact PLUS!	16.05.01	MASTERDRIVES VC	



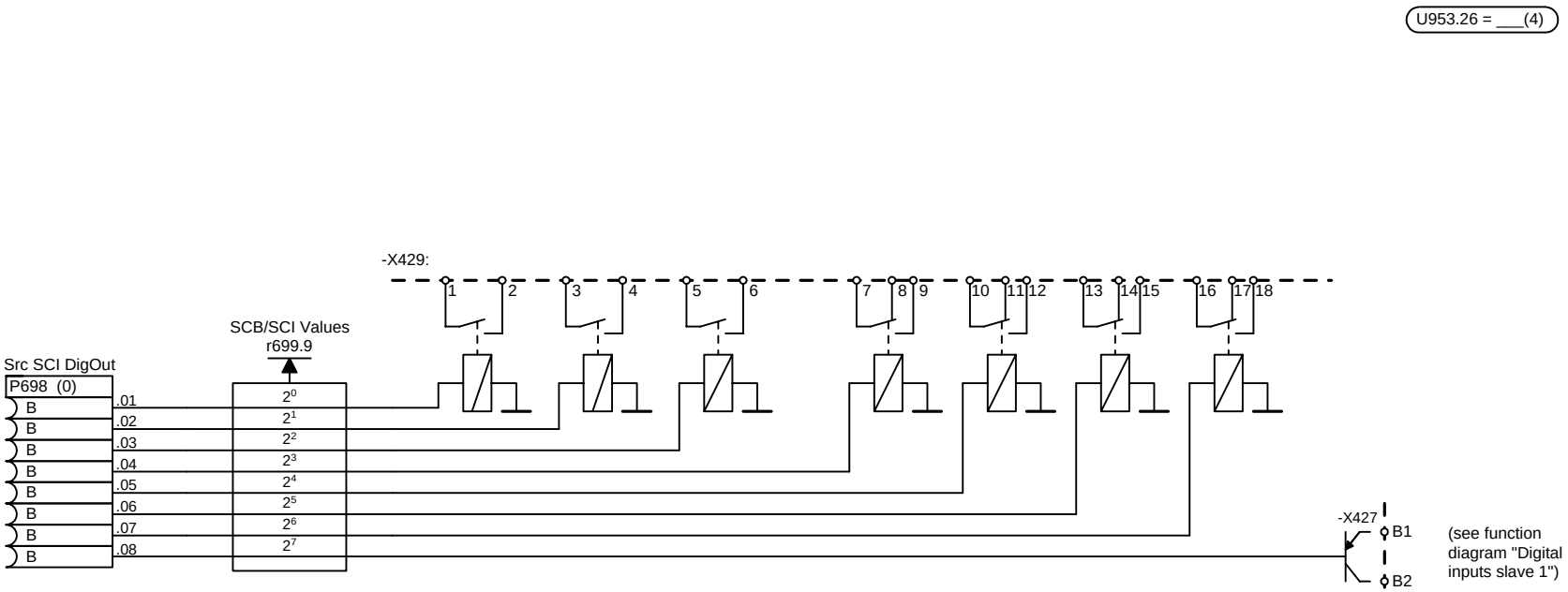
1	2	3	4	5	6	7	8
SCB2					fp_vc_Z06_e.vsd	Function diagram	- Z06 -
USS transmitting				Not with Compact PLUS!	16.05.01	MASTERDRIVES VC	



1	2	3	4	5	6	7	8
SCB1 with SCI1					fp_vc_Z10_e.vsd	Function diagram	- Z10 -
Digital inputs slave 1				Not with Compact PLUS!	16.05.01	MASTERDRIVES VC	

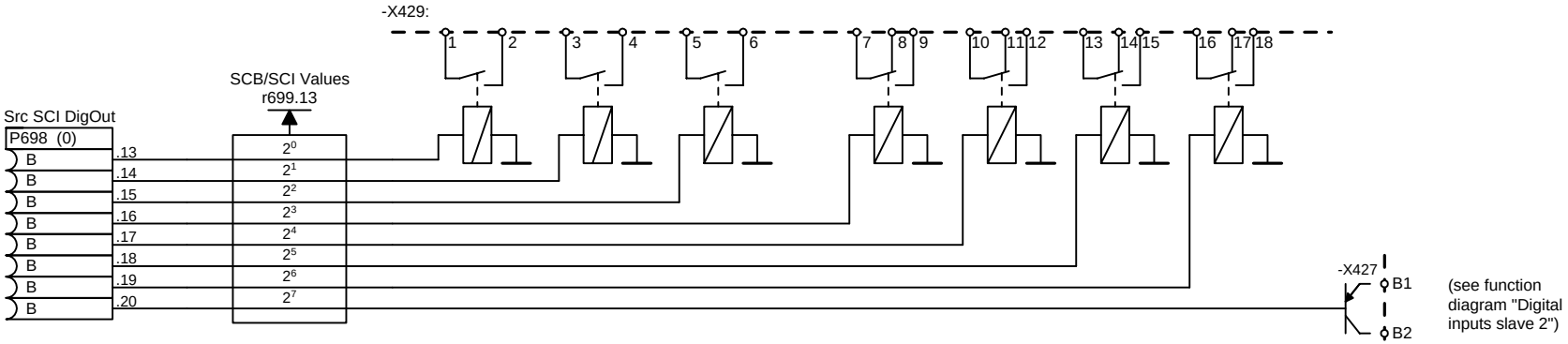


1	2	3	4	5	6	7	8
SCB1 with SCI1					fp_vc_Z11_e.vsd	Function diagram	- Z11 -
Digital inputs slave 2				Not with Compact PLUS!	16.05.01	MASTERDRIVES VC	

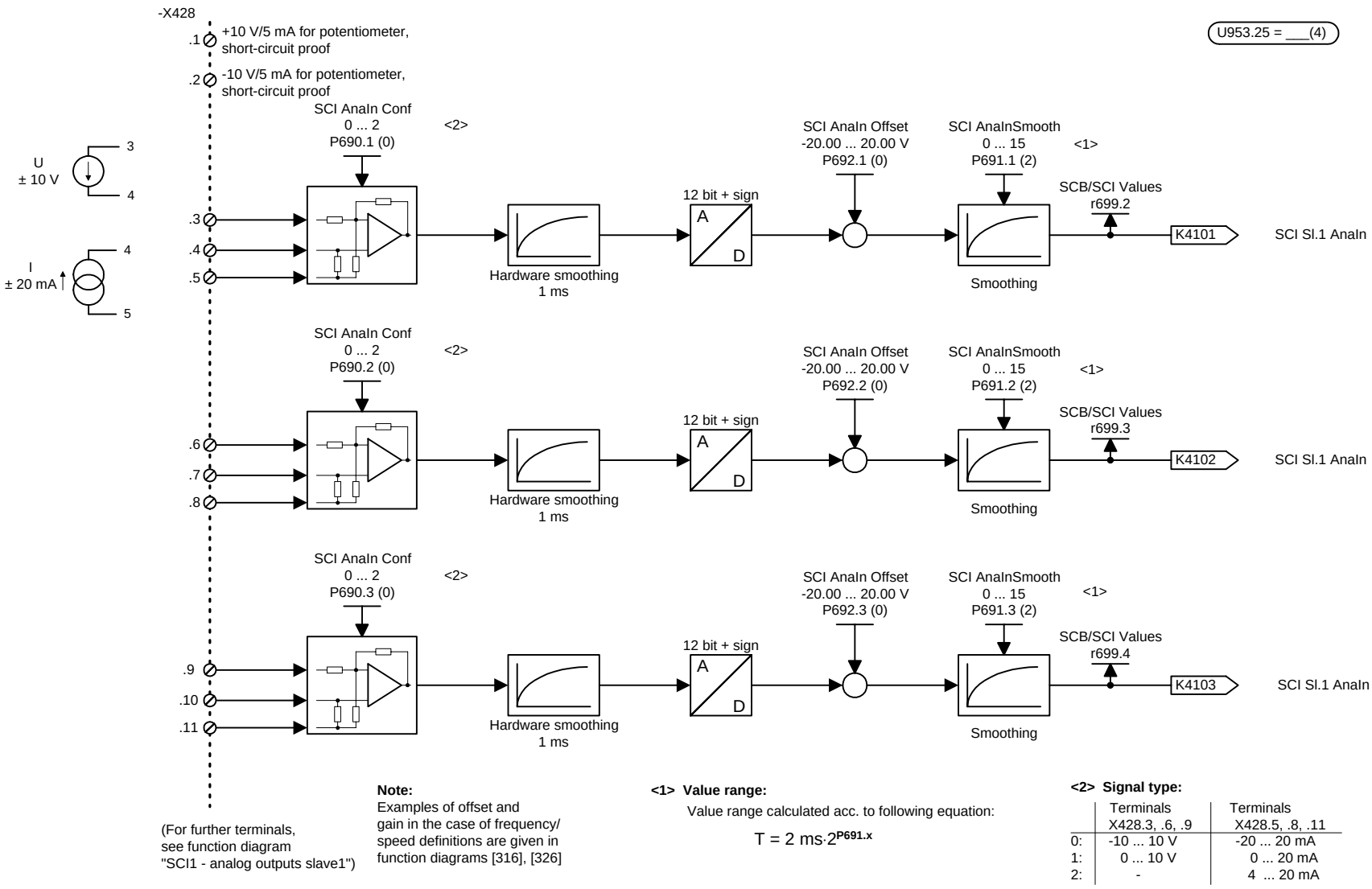


1	2	3	4	5	6	7	8
SCB1 with SCI1					fp_vc_Z15_e.vsd	Function diagram	- Z15-
Digital outputs slave 1				Not with Compact PLUS!	16.05.01	MASTERDRIVES VC	

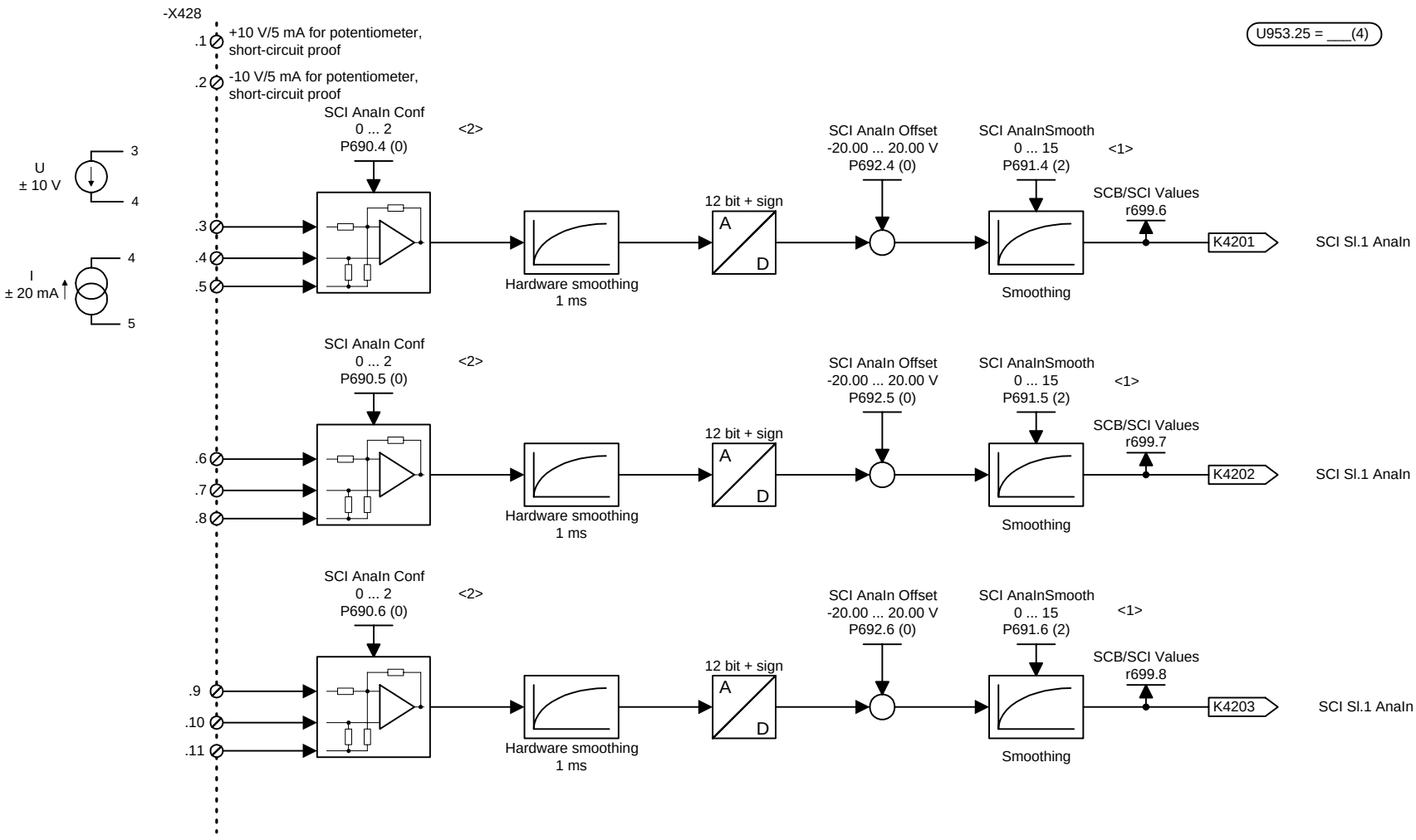
U953.26 = ___(4)



1	2	3	4	5	6	7	8
SCB1 with SCI1					fp_vc_Z16_e.vsd	Function diagram	- Z16 -
Digital outputs slave 2				Not with Compact PLUS!	16.05.01	MASTERDRIVES VC	



1	2	3	4	5	6	7	8
SCB1 with SCI1					fp_vc_Z20_e.vsd	Function diagram	- Z20 -
SCI1 - analog inputs slave 1				Not with Compact PLUS!	16.05.01	MASTERDRIVES VC	



(For further terminals, see function diagram "SCI1 - analog outputs slave2")

Note:
Examples of offset and gain in the case of frequency/ speed definitions are given in function diagrams [316], [326]

<1> Value range:

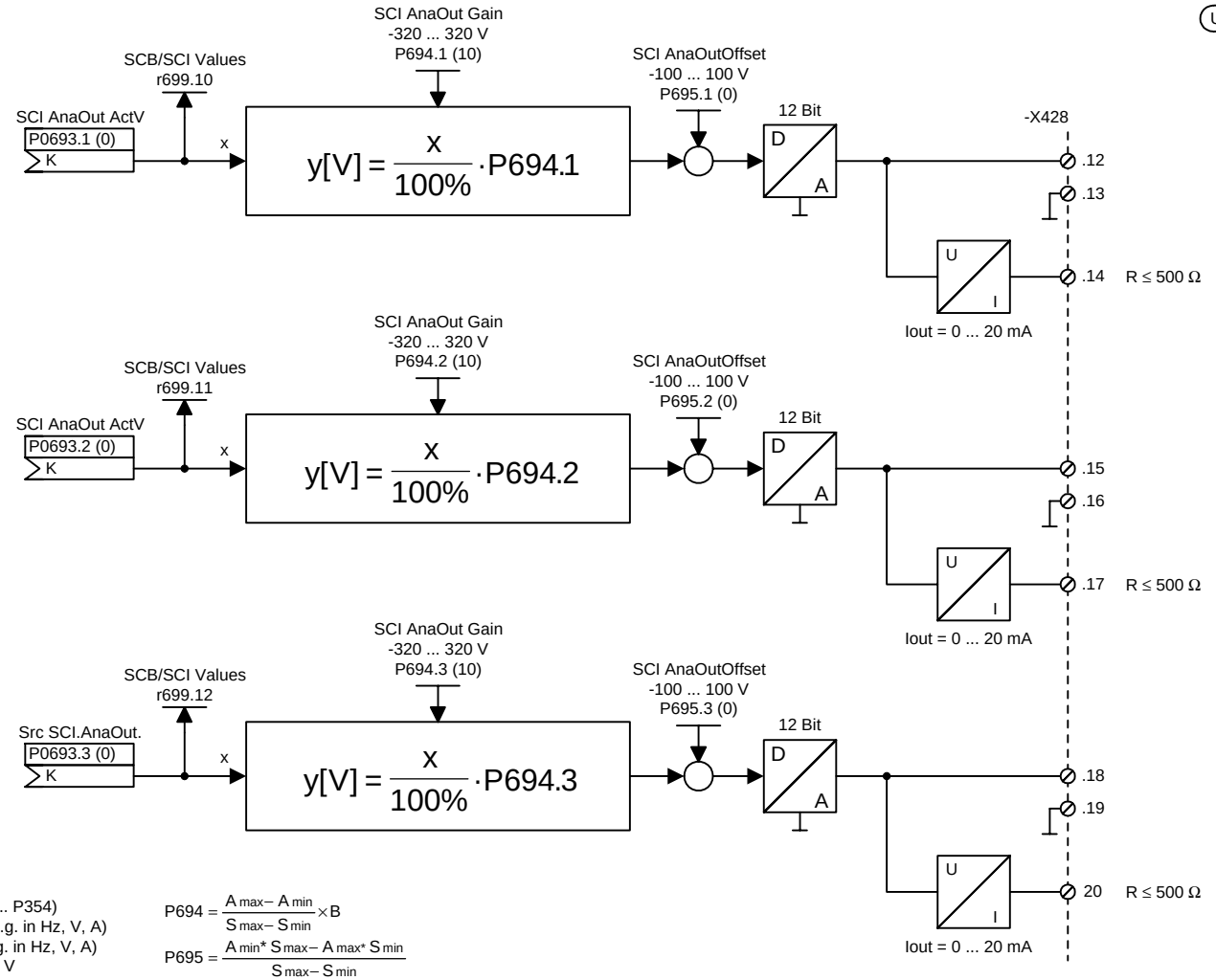
Value range calculated acc. to following equation:

$$T = 2\ ms \cdot 2^{P691.x}$$

<2> Signal type:

	Terminals X428.3, .6, .9	Terminals X428.5, .8, .11
0:	-10 ... 10 V	0 ... 20 mA
2:		4 ... 20 mA

U953.26 = ___(4)



Note on Setting:
B = Reference value (cf P350 ... P354)
S_{min} = Smallest signal value (e.g. in Hz, V, A)
S_{max} = Largest signal value (e.g. in Hz, V, A)
A_{min} = Smallest output value in V
A_{max} = Largest output value in V

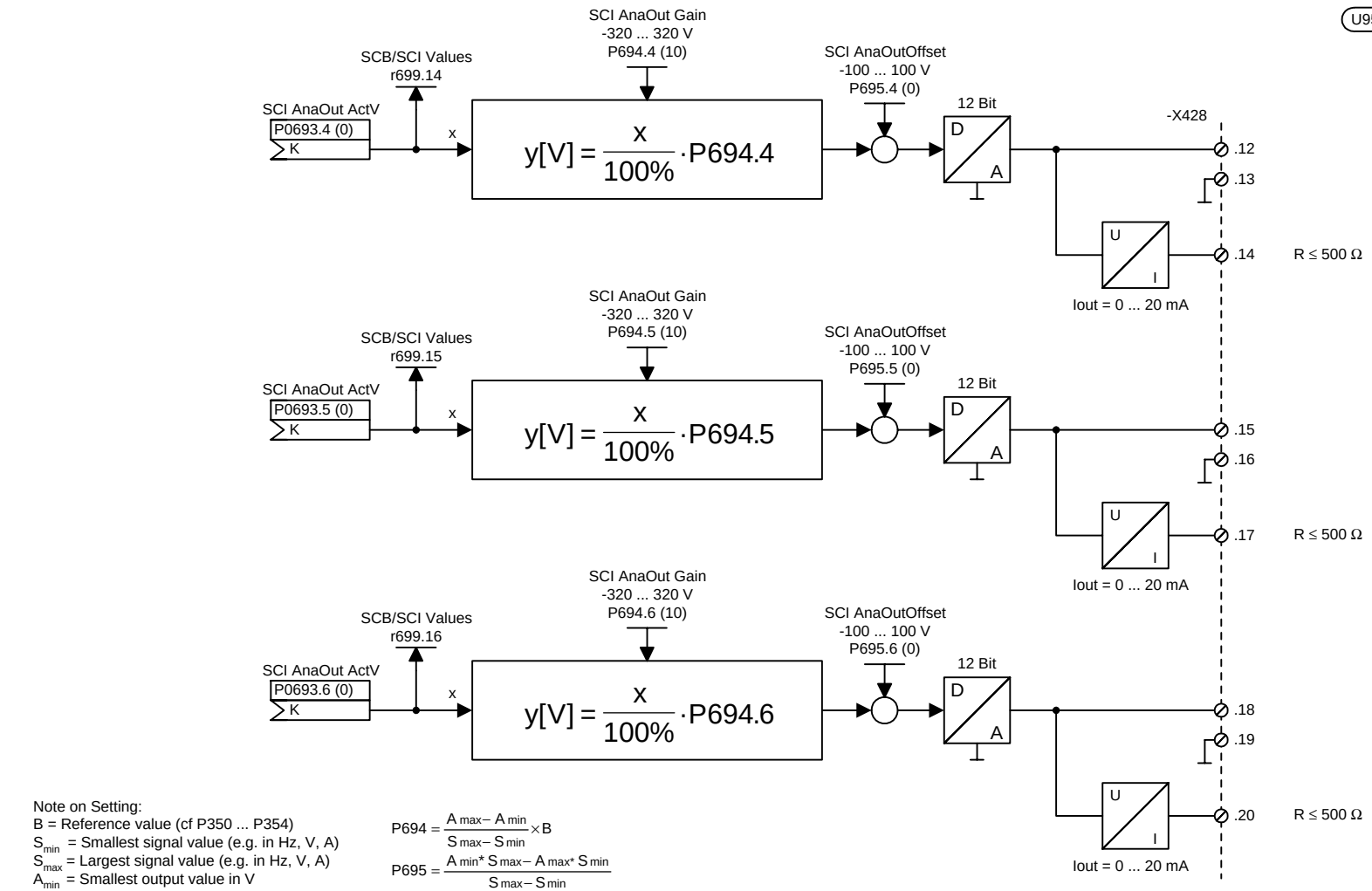
Output values in the case of current output:
4 mA ⇒ A_{min} = + 6 V
20 mA ⇒ A_{max} = - 10 V

$$P694 = \frac{A_{max} - A_{min}}{S_{max} - S_{min}} \times B$$

$$P695 = \frac{A_{min} * S_{max} - A_{max} * S_{min}}{S_{max} - S_{min}}$$

(For further terminals,
see function diagram
"SCI1 - analog inputs slave1")

1	2	3	4	5	6	7	8
SCB1 with SCI1					fp_vc_Z25_e.vsd	Function diagram	- Z25 -
SCI1 analog outputs slave 1				Not with Compact PLUS!	16.05.01	MASTERDRIVES VC	



Note on Setting:
B = Reference value (cf P350 ... P354)
S_{min} = Smallest signal value (e.g. in Hz, V, A)
S_{max} = Largest signal value (e.g. in Hz, V, A)
A_{min} = Smallest output value in V
A_{max} = Largest output value in V

$$P694 = \frac{A_{max} - A_{min}}{S_{max} - S_{min}} \times B$$

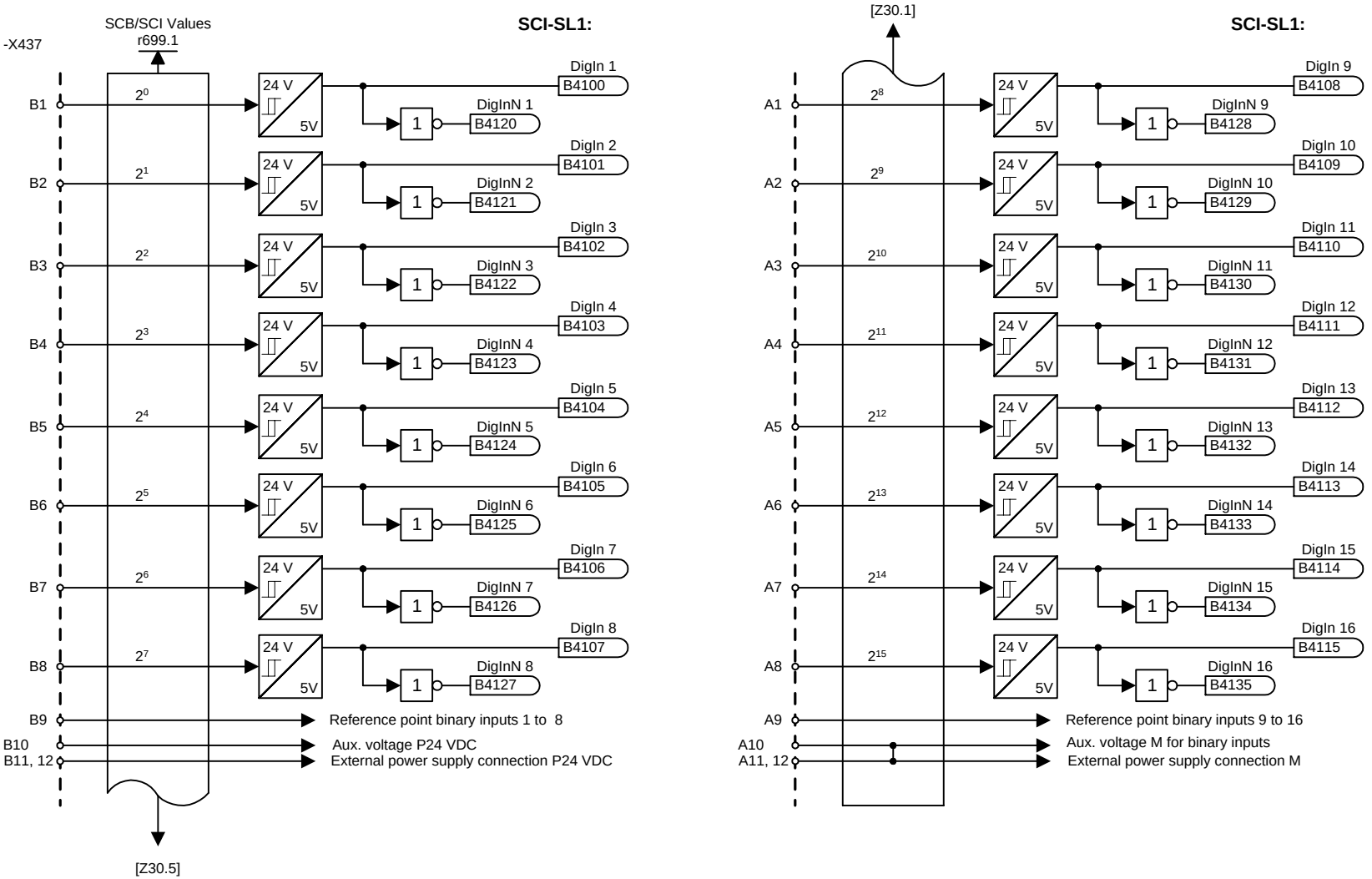
$$P695 = \frac{A_{min} * S_{max} - A_{max} * S_{min}}{S_{max} - S_{min}}$$

Output values in the case of current output:
4 mA ⇒ A_{min} = + 6 V
20 mA ⇒ A_{max} = - 10 V

(For further terminals,
see function diagram
"SCI1 - analog inputs slave 2")

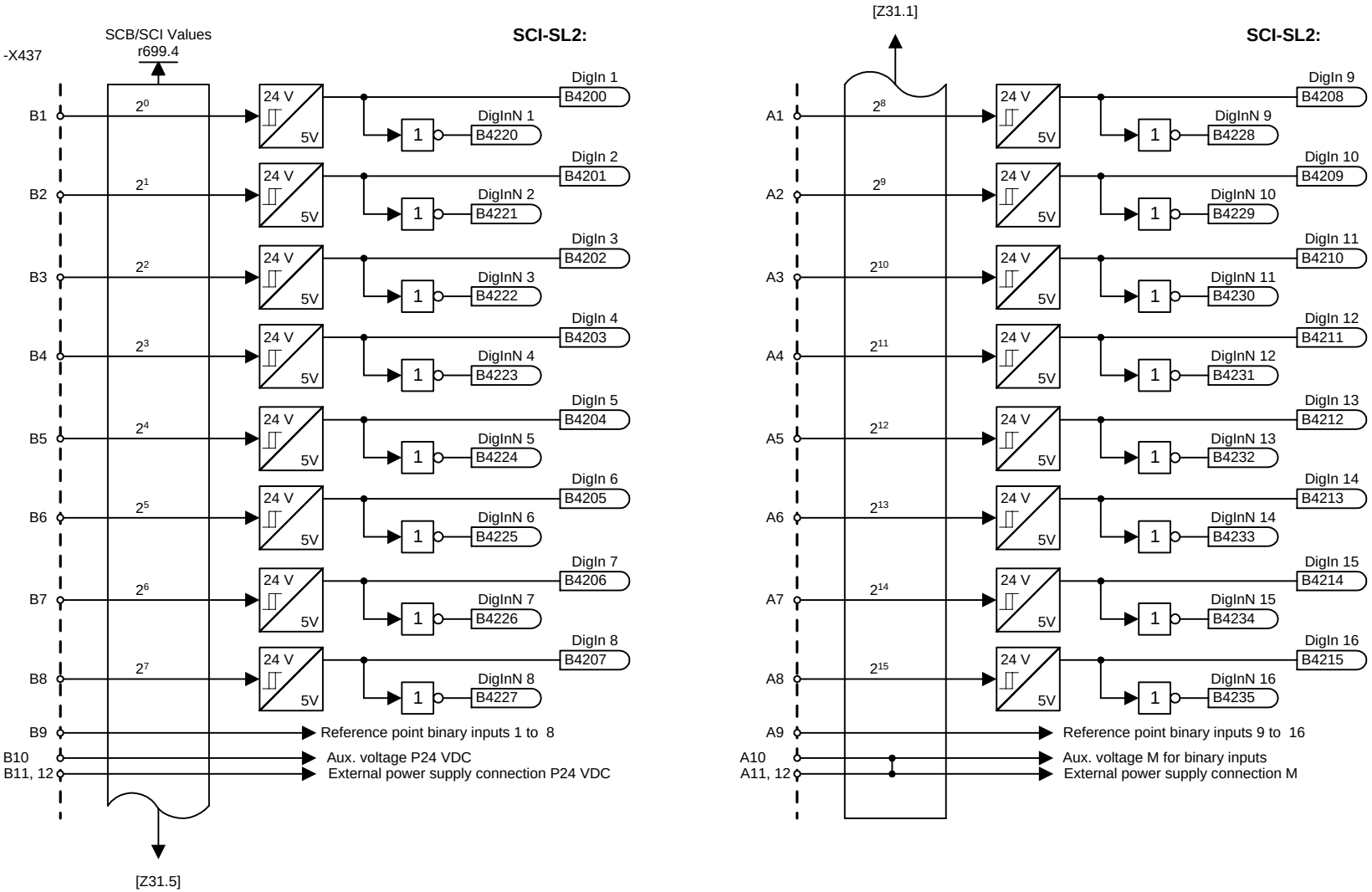
1	2	3	4	5	6	7	8
SCB1 with SCI1					fp_vc_Z26_e.vsd	Function diagram	- Z26 -
SCI1 analog outputs slave 2				Not with Compact PLUS!	16.05.01	MASTERDRIVES VC	

U953.25 = ___(4)



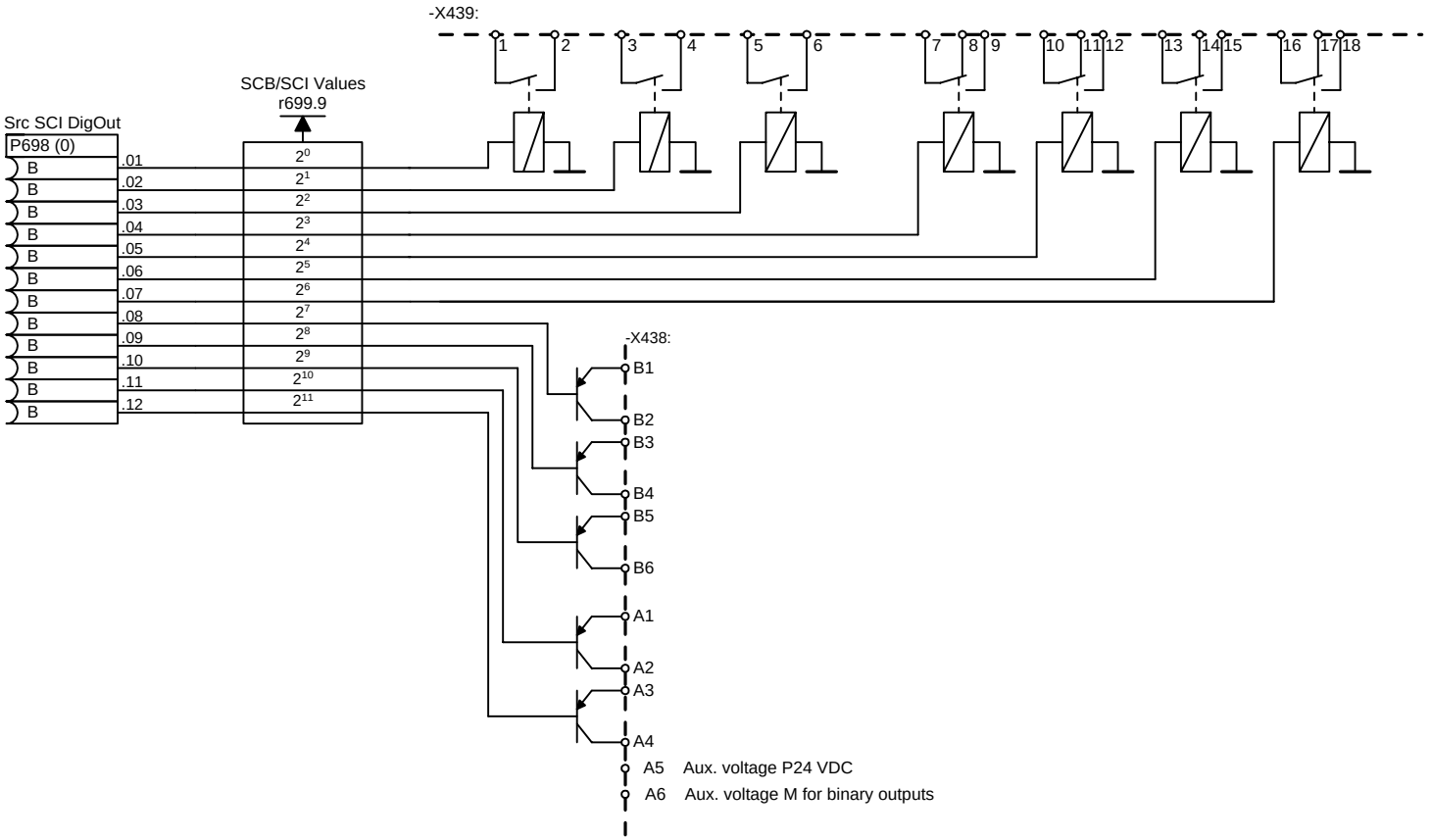
1	2	3	4	5	6	7	8
SCB1 with SCI2					fp_vc_Z30_e.vsd	Function diagram	- Z30 -
Digital inputs slave 1				Not with Compact PLUS!	16.05.01	MASTERDRIVES VC	

U953.25 = ___(4)



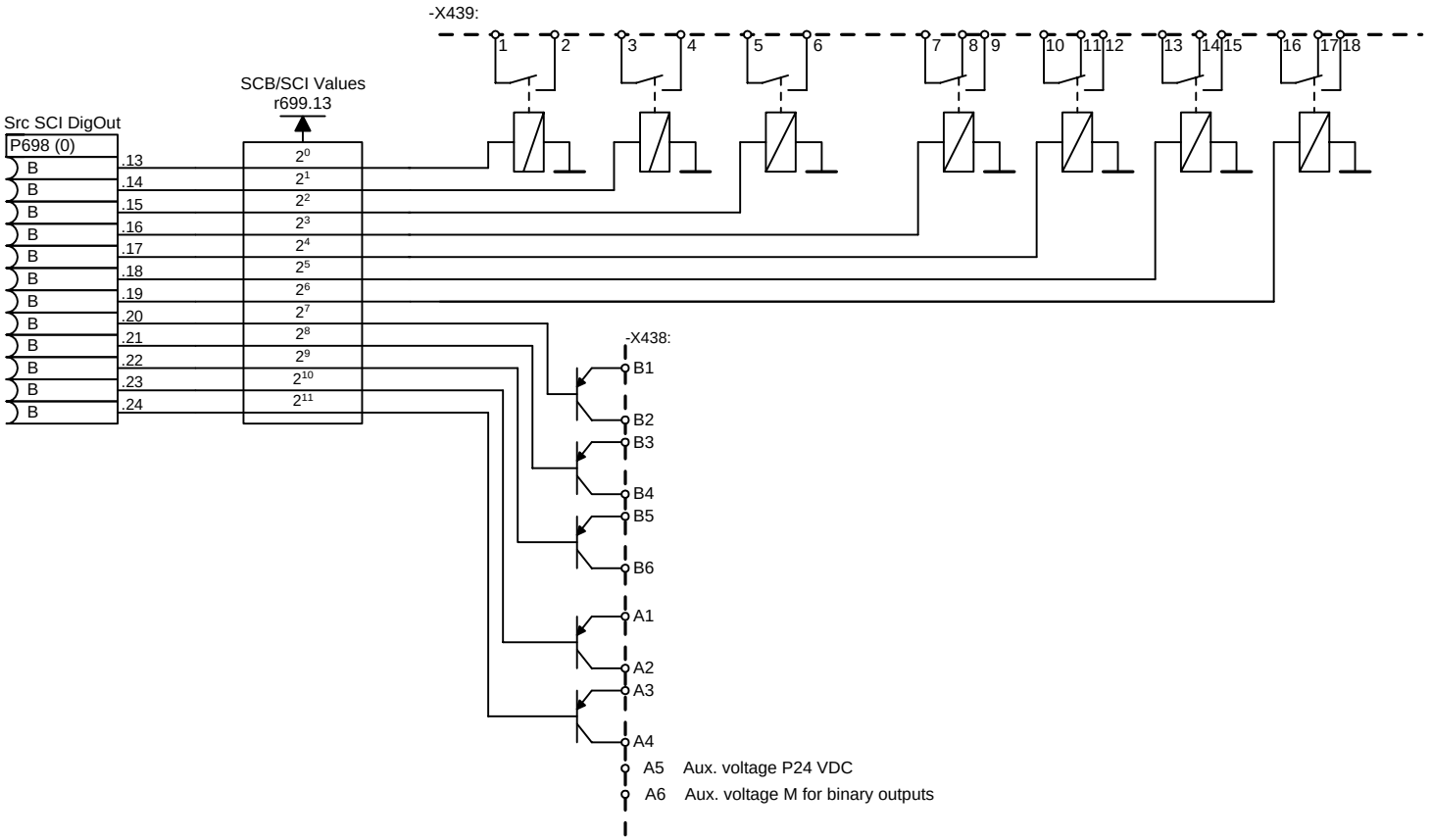
1	2	3	4	5	6	7	8
SCB1 with SCI2					fp_vc_Z31_e.vsd	Function diagram	- Z31 -
Digital inputs slave 2				Not with Compact PLUS!	16.05.01	MASTERDRIVES VC	

U953.26 = ___(4)



1	2	3	4	5	6	7	8
SCB1 with SCI2					fp_vc_Z35_e.vsd	Function diagram	- Z35 -
Digital outputs slave 1				Not with Compact PLUS!	16.05.01	MASTERDRIVES VC	

U953.26 = ___(4)



1	2	3	4	5	6	7	8
SCB1 with SCI2					fp_vc_Z36_e.vsd	Function diagram	- Z36 -
Digital outputs slave 2				Not with Compact PLUS!	16.05.01	MASTERDRIVES VC	