

Rexroth RD500 RS51 Firmware 05VRS

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Edition 01

Version Notes



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Firmware 05VRS

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Purpose of Documentation This documentation describes ...

- the features of firmware version 05VRS
- the differences of version 05VRS compared with version 04VRS

Record of Revisions

Description	Release Date	Notes
DOK-RD500*-RS51*05VRS*-FV01-EN-P	08.2003	first edition

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1 Overview

1.1 Additional documents

These version notes describe the differences between firmware version 05VRS compared with version 04VRS. For full information please use the in addition the following documents from version 04VRS:

- function diagrams and parameter list DOK-RD500*-RS51*04VRS*FK01-EN-P
- operating instructions DOK-RD500*-RS51*****-IB01-EN-P

1.2 RDwin

The version 05VRS is supported from RDwin SWA-RD5WIN-10V09-MS-CD650-RD500.

1.3 Changed sampling times

Several modules have an other sampling time:

Modul	smpling time new (05VRS)	sampling time old (04VRS)	function diagram page
logic elemets 0 .. 19	8 ms	4 ms	26, 27
coder D1673	8 ms	4 ms	28
comparator	8 ms	4 ms	29
window-comparators	8 ms	4 ms	30
process data switches (2 inputs)	8 ms	4 ms	31
multi function blocks	8 ms	4 ms	32
process data modules	8 ms	4 ms	33
Technologieregler	8 ms	4 ms	35

Fig. 1-1: Sampling times

Note: The modules are identified in users manual by “t_A: 1ms/xx ABC”. This corresponds to a sampling time of 4ms, see legend of function diagrams

2 Changes in modul gap eliminator

2.1 Adjustment by keypad

The gap eliminator sensivity can be adjusted by the keypad buttons „<“ and „>“ instead of + and - .

Note: See function diagrams page 22 and 23

Note: The function motor potentiometer for changing the speed setpoint is adjusted anymore by buttons „+“ und „-“.

2.2 Notes for commisioning

Synchronous modulation

Note: For detailed information see function diagrams 22 und 23 (opposite page) in DOK-RD500*-RS51*04VRS*FK01-EN-P

The switching frequency above a certain limit is synchronised to the motor frequency. Below this limit the switching frequency is fixed and not synchronised to the motor frequency.

Improvement of active current signal

Under certain circumstances it is helpfull to switch of the synchronous modulation up to a maximum motor frequency of 1500 Hz in order to improve the quality of the active current signal. In that case the following parameters have to changed:

Parameter	New value	standard values	Notes
P0701.21	1580 Hz	400 Hz	start 21fold modulation
P0701.15	1580 Hz	714 Hz	start 15fold modulation
P0701.12	1580 Hz	1000 Hz	start 12fold modulation
P0701.09	1580 Hz	1250 Hz	start 9fold modulation

Fig. 2-1: switching off of synchronous modulation

Note: The harmonic spectrum of motor current is changed by switching off the synchronous modulation. Please check the motor currents with an oscilloscope in order to avoid resonant oscillations.



WARNING

Output frequencies above 1500 Hz in combination with asynchronous modulation is not permitted and can destroy motor and inverter.

3 New functions

3.1 Standstill detection

A new function “standstill detection” was implemented. The following parameters set this function:

Parameter	Name	Function
P0392	f-standstill	comparator threshold
P0391	hysteresis standstill	comparator hysteresis
D1709	f < f-standstill	signal standstill reached
D1746	f > f-standstill	signal standstill not reached

Fig. 3-2: Parameters for function “standstill”

Actual value of frequency is parameter D1981.

Note: For detailed information see function diagram page 25

3.2 New changover of parameter sets

The allocation of some parameters to the changover signals of “setpoint memory” or “motor parameter set” was changed:

Parameter	new changover signal (05VRS)	former changover signal (04VRS)
P0179.xx P0180.xx P0280.xx P0281.xx P0282.xx P0283.xx	D1672 (motor parameter set)	D1671 (setpoint memory)

Fig. 3-3: New changover signals

Note: See function diagrams 1, 15 und 16

3.3 New display function – speed setpoint

The speed setpoint can displayed now on keypad:

Parameter	Value
P0037.xx	10 (n-setpoint)

Fig. 3-4: Activation display of speed setpoint

4 New default and maximum values

4.1 Voltage controller

The default values of voltage controller (see function diagram 20) were modified:

Parameter	New default value (05VRS)	Former default value (04VRS)
P1228 (gain voltage controller Kp)	0.8	0.2
P1229 (time constant voltage controller Tn)	100 ms	1000 ms

Fig. 4-1: New default values voltage controller

4.2 Status word 1

The default value of status word 1 (see function diagram 04) was modified:

Parameter	New default value (05VRS)	Former default value (04VRS)
P76.11 (status word bit 11)	D1513 (current limit not reached)	D1700
P76.13 (status word bit 13)	D1514 (motor overload not reached)	D1700
P76.14 (status word bit 14)	D1515 (positive of direction of rotation)	D1700

Fig. 4-2: Default values statusword 1

Note: See function diagrams 04, 18, 21 and 24

4.3 Maximum Values of parameters

The maximum values of the following parameters were modified:

Parameter	New maximum value (05VRS)	Former maximum value (04VRS)
P104 (rated voltage induction motor ASM)	460 V	400 V
P0185.xx bis P188.xx (voltage Ua .. Ud)	460 V	400 V

Fig. 4-3: New maximum values

5 Function diagrams

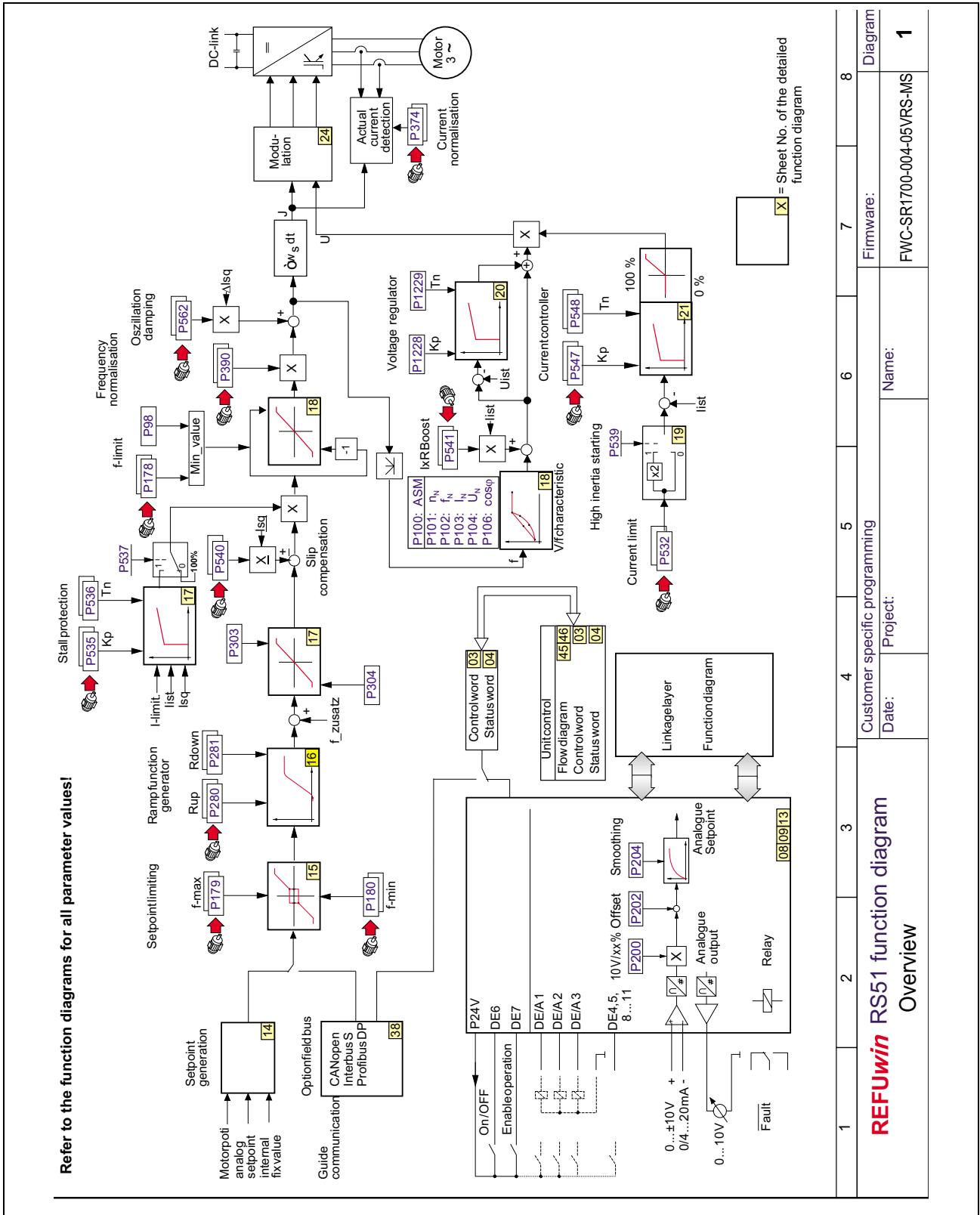


Fig. 5-1: Function diagram 1 - Overview

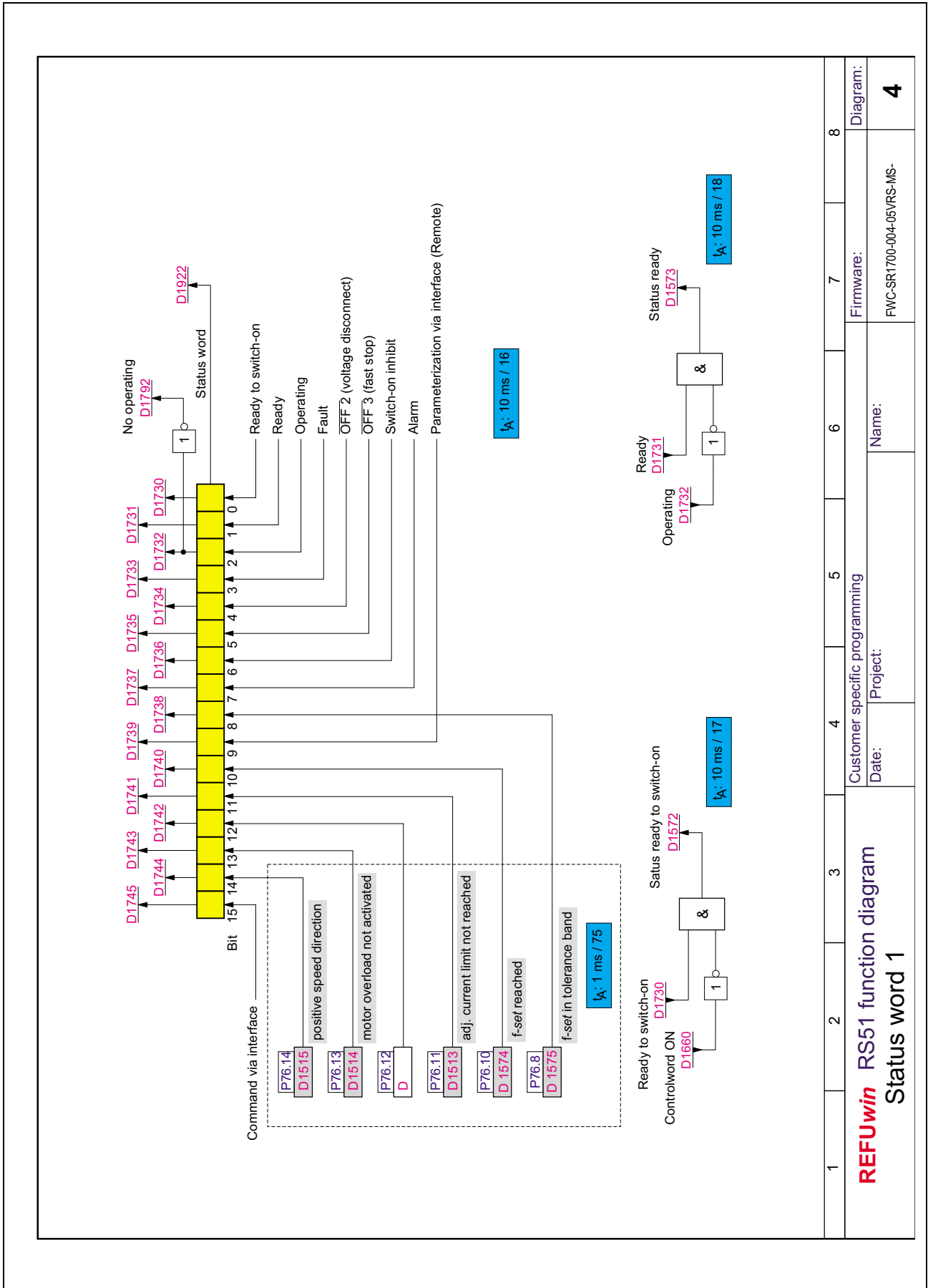
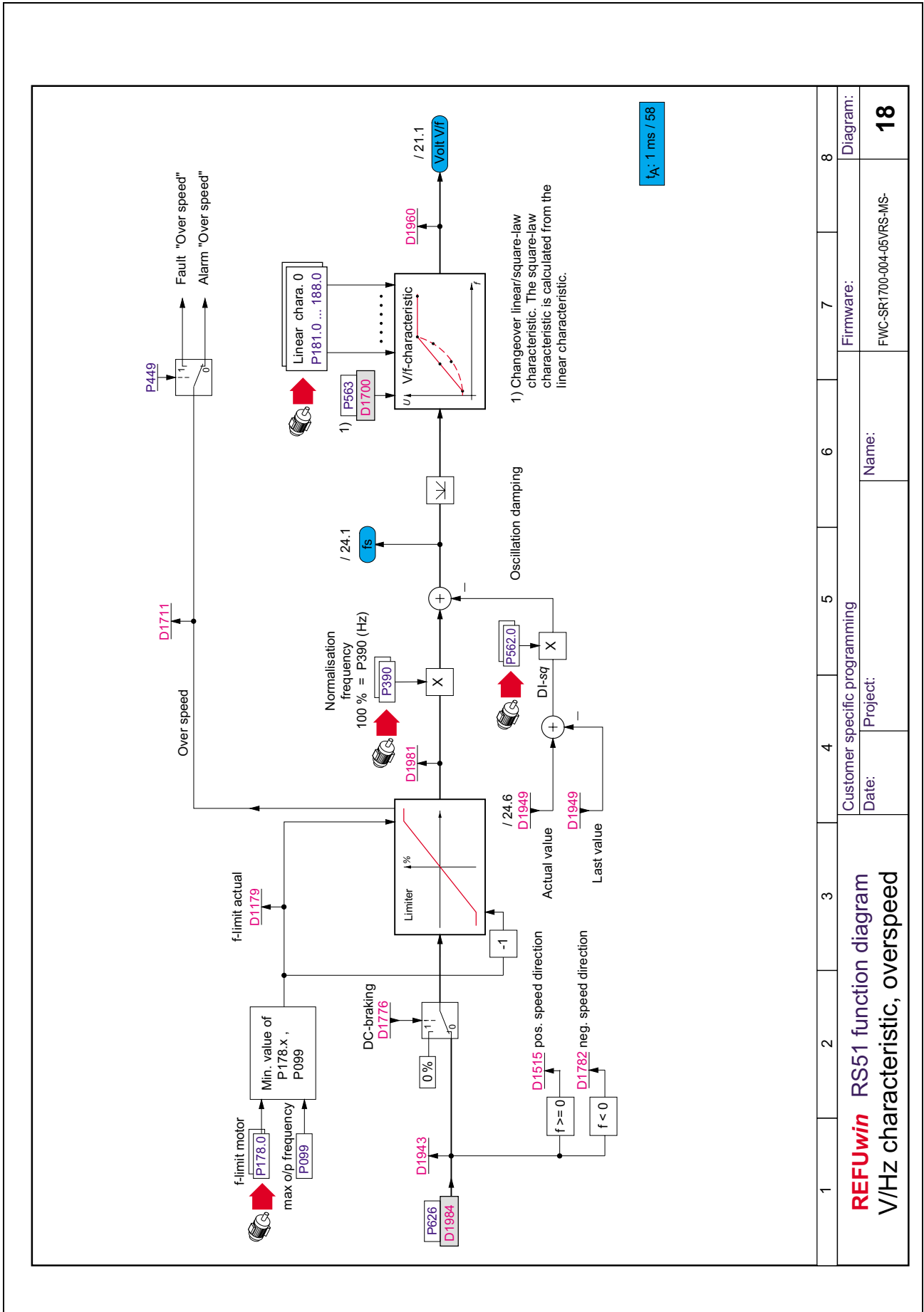


Fig. 5-2: Function diagram 4 – Status word 1

1	2	3	4	5	6	7	8
REFUwin RS51 function diagram			Customer specific programming		Firmware:		Diagram:
Status word 1			Date:	Project:	FWC-SR1700-004-05VRS-MS-		4



1	2	3	4	5	6	7	8
REFUwin RS51 function diagram V/Hz characteristic, overspeed			Customer specific programming Date:	Name:	Firmware: FWC-SR1700-004-05VRS-MS-	Diagram: 18	

Fig. 5-5: Function diagram 18 – V/Hz characteristic , overspeed

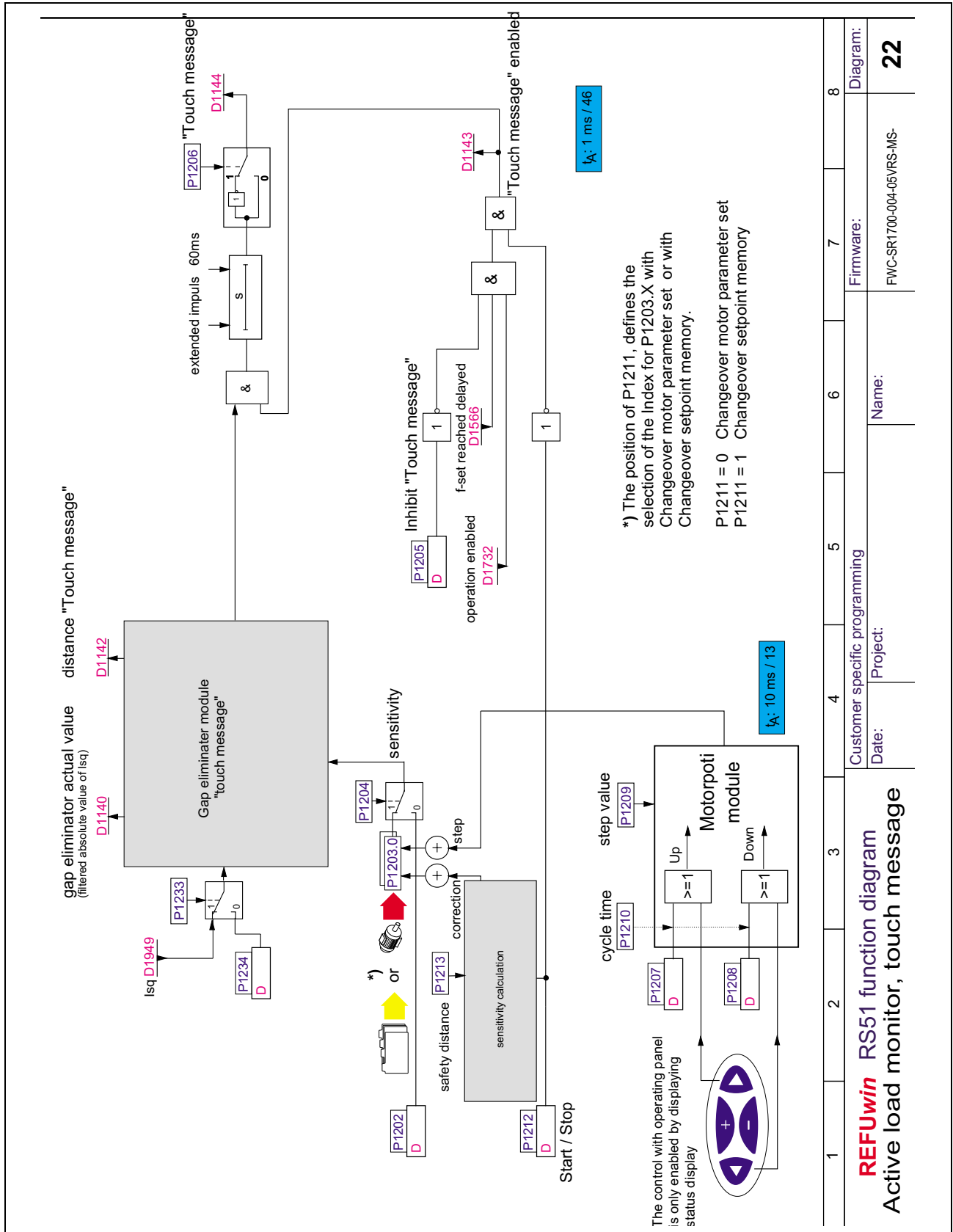


Fig. 5-7: Function diagram 22 – Active load monitor , touch message

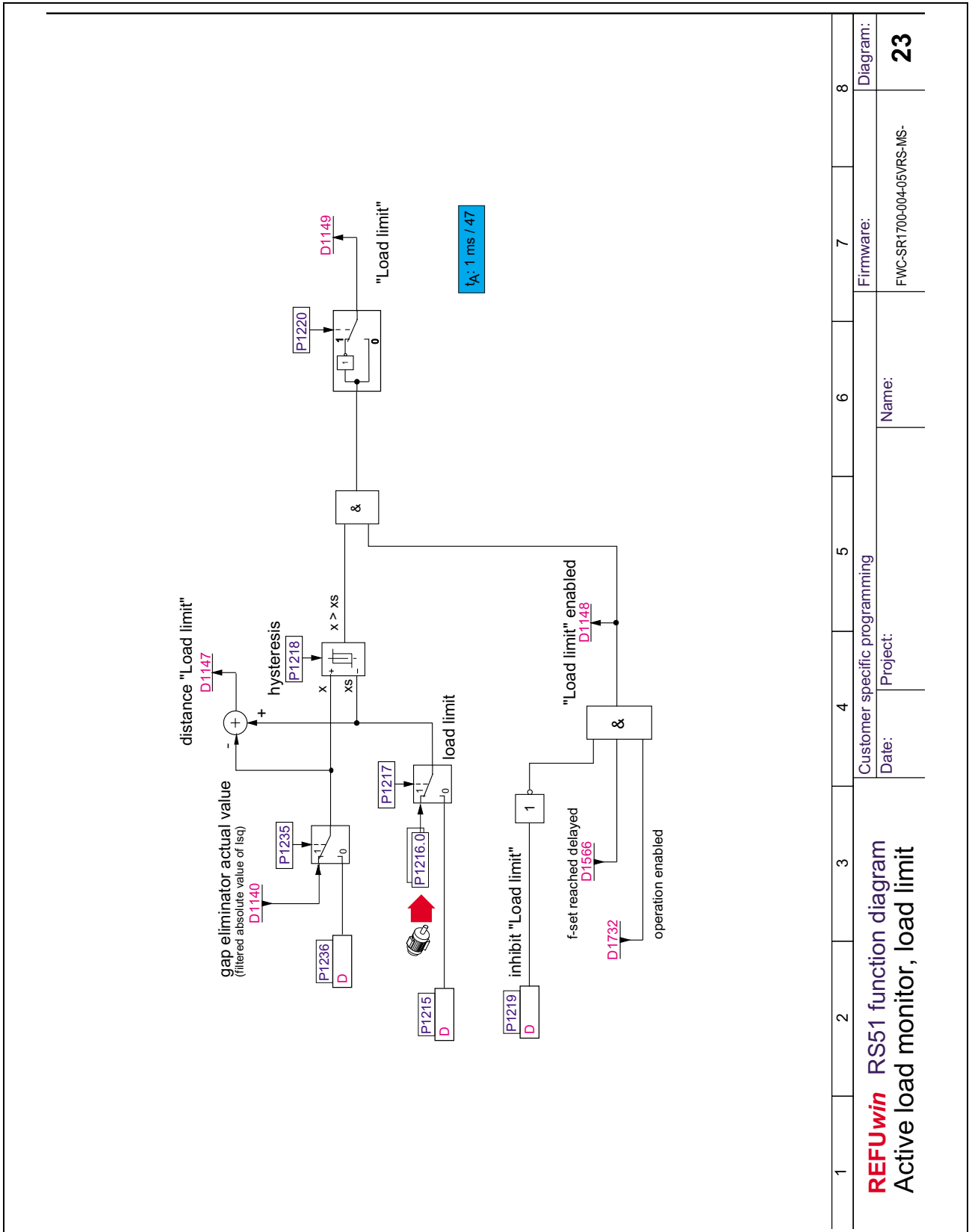
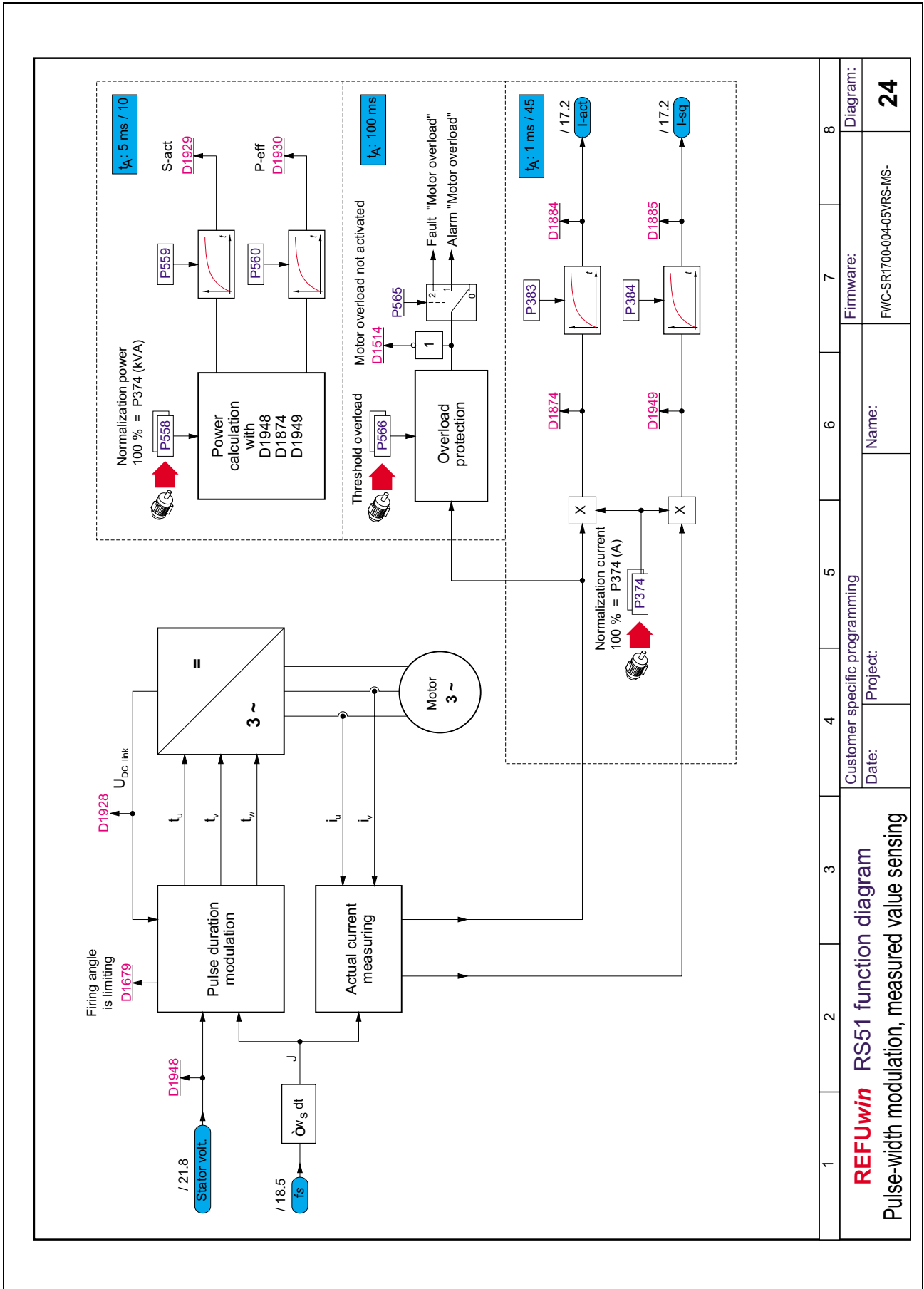


Fig. 5-8: Function diagram 23 – Active load monitor , load limit



1	2	3	4	5	6	7	8
REFUwin RS51 function diagram Pulse-width modulation, measured value sensing			Customer specific programming Date:		Name: Project:		Firmware: FWC-SR1700-004-05VRS-MS-
							Diagram: 24

Fig. 5-9: Function diagram 24 – Pulse with modulation, measured value sensing

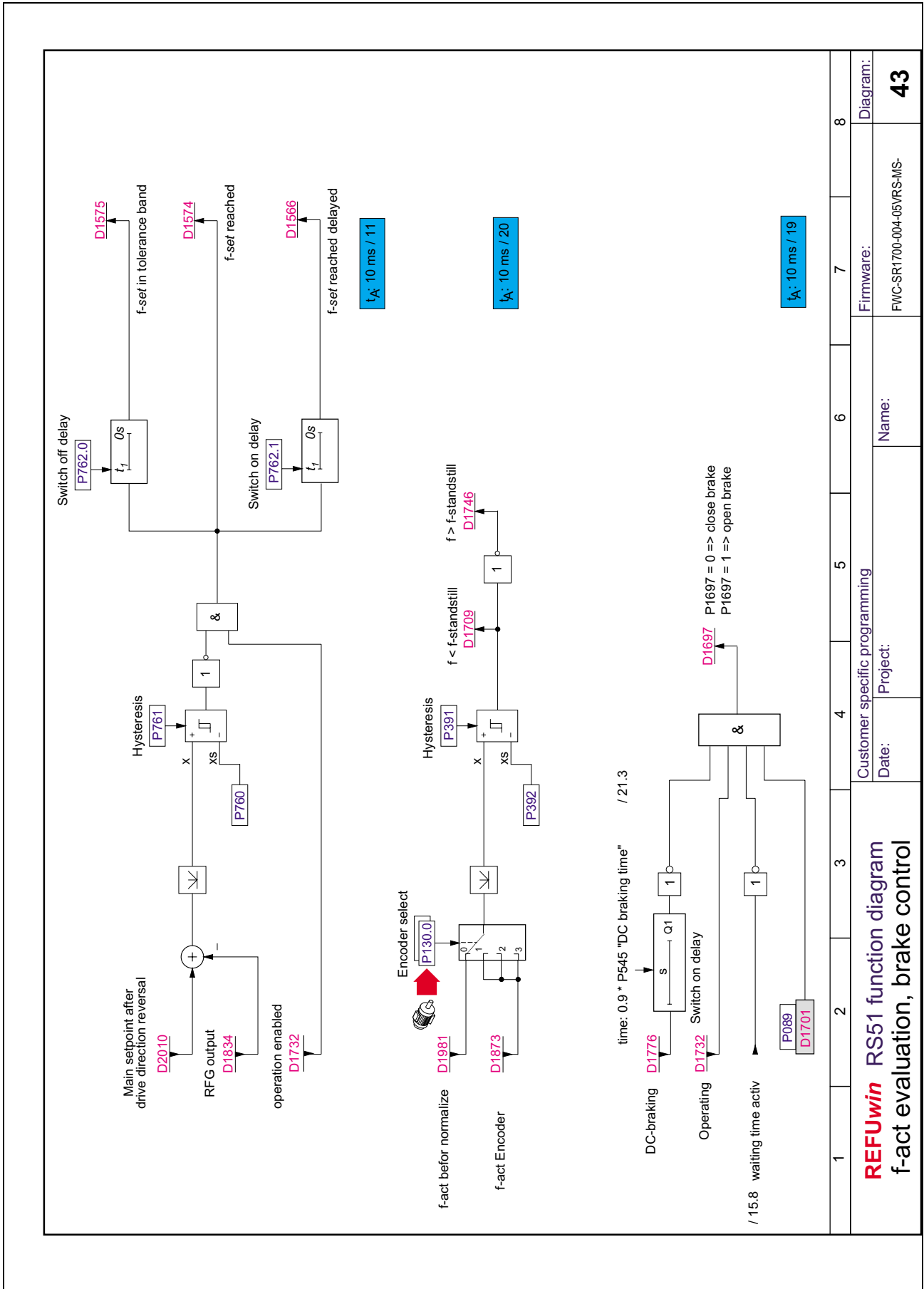


Fig. 5-10: Function diagram 43 – f-act evaluation , brake control

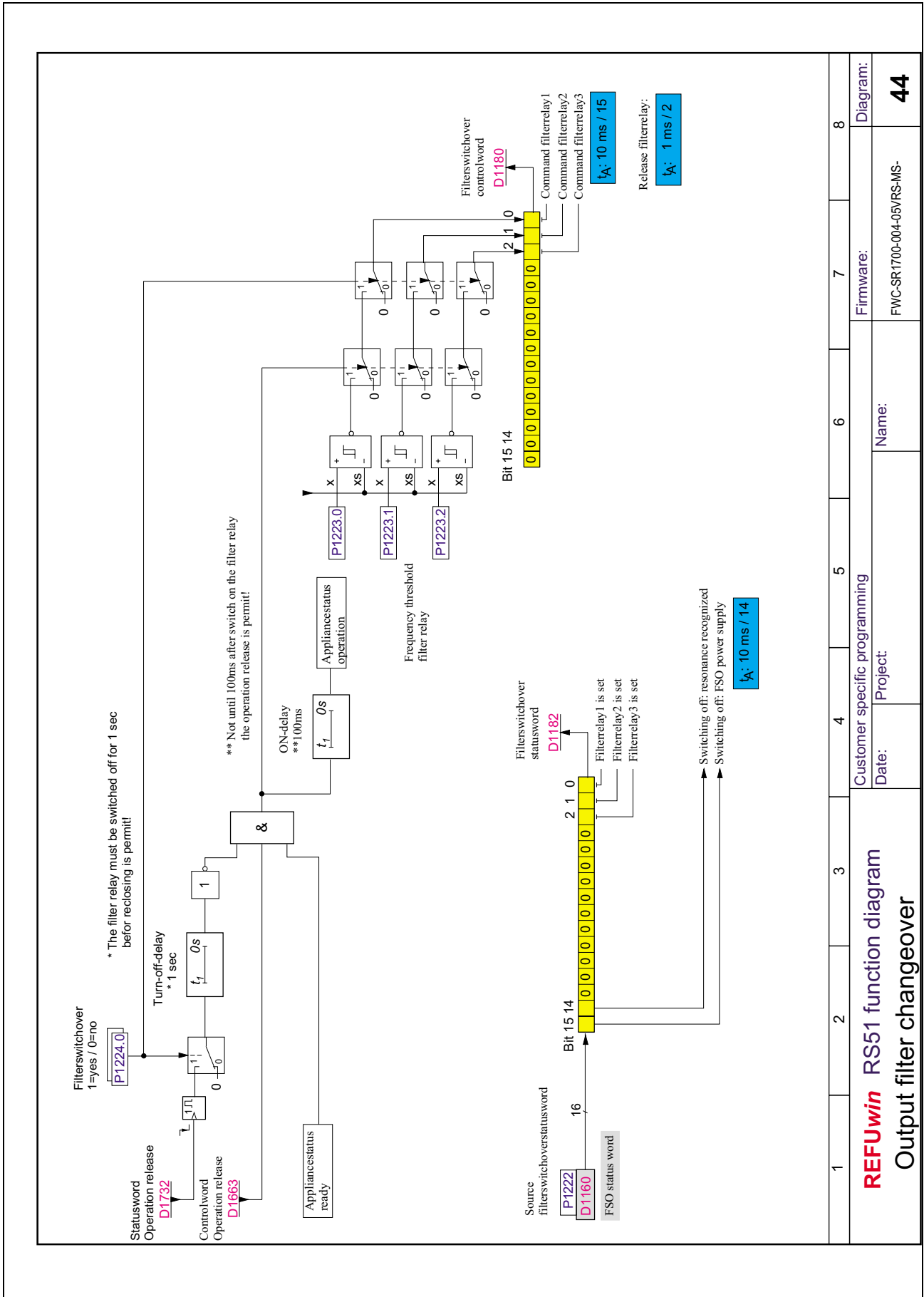


Fig. 5-11: Function diagram 44 – Output filter changeover

1	2	3	4	5	6	7	8
REFUwin RS51 function diagram				Customer specific programming			
Output filter changeover				Firmware:			
Date:		Project:		Name:		Diagram:	
				FWC-SR170C-004-05VRS-MS-		44	

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