

Rexroth RD 500 RD 51 Firmware 05VRS

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Edition 01

Version Notes



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Purpose of Documentation	This documentation describes ... <ul style="list-style-type: none">• the features of firmware version 05VRS• the differences of version 05VRS compared with version 04VRS

Record of Revisions

Description	Release Date	Notes
DOK-RD500*-RD51*05VRS-FV01-EN-P	12-2004	first edition

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Uracher Strasse 91 • D-72555 Metzingen
Telefon +49 (0)71 23 / 9 69-0 • Fax +49 (0)71 23 / 9 69-260
<http://www.boschrexroth.de/>
Dept. ENG (PM)

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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 in addition the following documents from version 04VRS:

- function diagrams and parameter list
DOK-RD500*-RD51*04VRS*FK01-EN-P
- operating instructions DOK-RD500*-RD51*04VRS*IBxx-EN-P

1.2 RDwin

The version 05VRS is supported from RDwin SWA-RD5WIN-11VRS-MS-CD650-RD500.

2 New functions

2.1 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. 2-1: Parameters for function “standstill”

Actual value of frequency is parameter D1981 (or D1873 when encoder is used).

Note: For detailed information see function diagram page 41.

2.2 New free available controller

A new internal PI controller is available.

Note: For detailed information see function diagram page 33.

2.3 New display function – speed setpoint

The speed setpoint can displayed now on keypad:

Parameter	Value
P0037.xx	10 (n-setpoint)

Fig. 2-2: Activation display of speed setpoint

2.4 Signals “motor rotating 1” and “motor rotating 2”

These signals are available anymore in basic parameterization (P0064). Since version 05VRS the current limit is additionally monitored: The signals are reseted, when the current limitation occurs longer than 3 s.

Parameter	Function name	Function description
P0875, P0876, P0877, P0881, P0886, P0887, P0888, P0889	79 = motor rotating 1	current flows , reset of signal when current limitation active longer than 3 s
P0875, P0876, P0877, P0881, P0886, P0887, P0888, P0889	80 = motor rotating 2	Motor rotates and current flows , reset of signal when current limitation active longer than 3 s

Table 2-1: Activation of signals

Note: The used resources has been changed, see following description

Fixed resource assignment

The inputs and outputs are permanently assigned with modules from the firmware (logic gates, output blocks etc.).

The arrangement and layout of the tables with the resource lists clearly illustrates the fixed resource assignment.

Function	Resource assignment	Func.-diagram
Signal: Motor rotates 1	System constant P0730 comparator logic 1 (D1576) timer module 3 (D1624)	39 39 25
Signal: Motor rotates 2	System constant P0731.01 comparator logic 2 (D1578) timer module 4 (D1626)	39 39 25

P0875 ... P0877 digital outputs

Param.	P-value	Fct.plan	Variable for digital outputs
--------	---------	----------	------------------------------

79 = O motor rotating 1				Dig. output 1	Dig. output 2	Dig. output 3
P0587.03	1678	BL25				
P0588.03	2	BL25				
P0589.03	30	BL25				
P0584.xx	1626	BL23	xx	00	01	02
P0585.xx	1660	BL23				
P0586.xx	0	BL23				
P0754.00	1660	BL39				
P0754.01	1517	BL39				
P0754.02	1884	BL39				
P0754.03	yy	BL39	yy	1610	1612	1614
P0755	2	BL39				
P1)	1576	BL08	P1)	P0460	P0462	P0464
P2)	1	BL08	P2)	P0471	P0473	P0475

80 = O motor rotating 2				Dig. output 1	Dig. output 2	Dig. output 3
P0587.03	1678	BL25				
P0588.03	2	BL25				
P0589.03	30	BL25				
P0584.xx	1626	BL23	xx	00	01	02
P0585.xx	1660	BL23				
P0586.xx	0	BL23				
P0758.00	1937	BL39				
P0758.01	1981	BL39				
P0758.02	1519	BL39				
P0758.03	1884	BL39				
P0758.04	yy	BL39	yy	1610	1612	1614
P1)	1578	BL08	P1)	P0460	P0462	P0464
P2)	1	BL08	P2)	P0471	P0473	P0475

P0881 Relayoutput

P0886 ... P0889 optional relay outputs (RZP01.1-T1)

Param.	P-value	Fct. plan	Variable for relay outputs
--------	---------	-----------	----------------------------

79 = O motor rotating 1

			Relay	Opt.Relay 1	Opt.Relay 2	Opt.Relay 3	Opt.Relay 4
P0587.02	1678	BL25					
P0588.02	2	BL25					
P0589.02	30	BL25					
P0584.xx	1624	BL23,24	xx	05	12	13	14
P0585.xx	1630	BL23,24					
P0586.xx	0	BL23,24					
P0754.00	1660	BL39					
P0754.01	1517	BL39					
P0754.02	1884	BL39					
P0754.03	yy	BL39	yy	1650	1584	1586	1588
P0755	2	BL39					
P0466	W1)	BL08	W1)	1576	-	-	-
P0491.zz	W2)	BL36	zz	-	00	01	02
			W2)	-	1576	1576	1576

80 = O motor rotating 2

			Relay	Opt.Relay 1	Opt.Relay 2	Opt.Relay 3	Opt.Relay 4
P0587.03	1678	BL25					
P0587.03	2	BL25					
P0587.03	30	BL25					
P0584.xx	1626	BL23,24	xx	05	12	13	14
P0584.xx	1660	BL23,24					
P0584.xx	0	BL23,24					
P0758.00	1937	BL39					
P0758.01	1981	BL39					
P0758.02	1519	BL39					
P0758.03	1884	BL39					
P0758.04	yy	BL39	yy	1650	1584	1586	1588
P0466	W1)	BL08	W1)	1678	-	-	-
P0491.zz	W2)	BL36	zz	-	00	01	02
			W2)	-	1678	1678	1678

3 New default and maximum values

3.1 Parameters P0898 and P0899

When loading default values the following parameters are set:

P0071	P0898	P0899
1 = basic standard values	1001	1001
2 = free standard values	2001	2001
3 = standard values for NAMUR applications	3001	3001
4 = standard values for SERCOS	4001	4001

Fig. 3-1: Overview parameters P0898, P0899

3.2 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)
P0076.11 (status word bit 11)	D1513 (current limit not reached)	D1700
P0076.13 (status word bit 13)	D1514 (motor overload not reached)	D1700
P0076.14 (status word bit 14)	D1515 (positive of direction of rotation)	D1700

Fig. 3-2: Default values statusword 1

Note: See function diagrams 04, 18, 20 and 21

3.3 Default values for NAMUR applications

Additional default values when choosing "P0071 = 3 = default values for NAMUR" are set:

Parameter	New default value (05VRS)	Former default value (04VRS)
P0067 (direction of rotation change)	D1711 (control word bit 11)	D1700
P0070 (change of parameter set)	D1775 (control word bit 15)	D1700

Table 3-2: Additional NAMUR default values

Note: These default values are only loaded when "P0071 = 3 = default values for NAMUR"

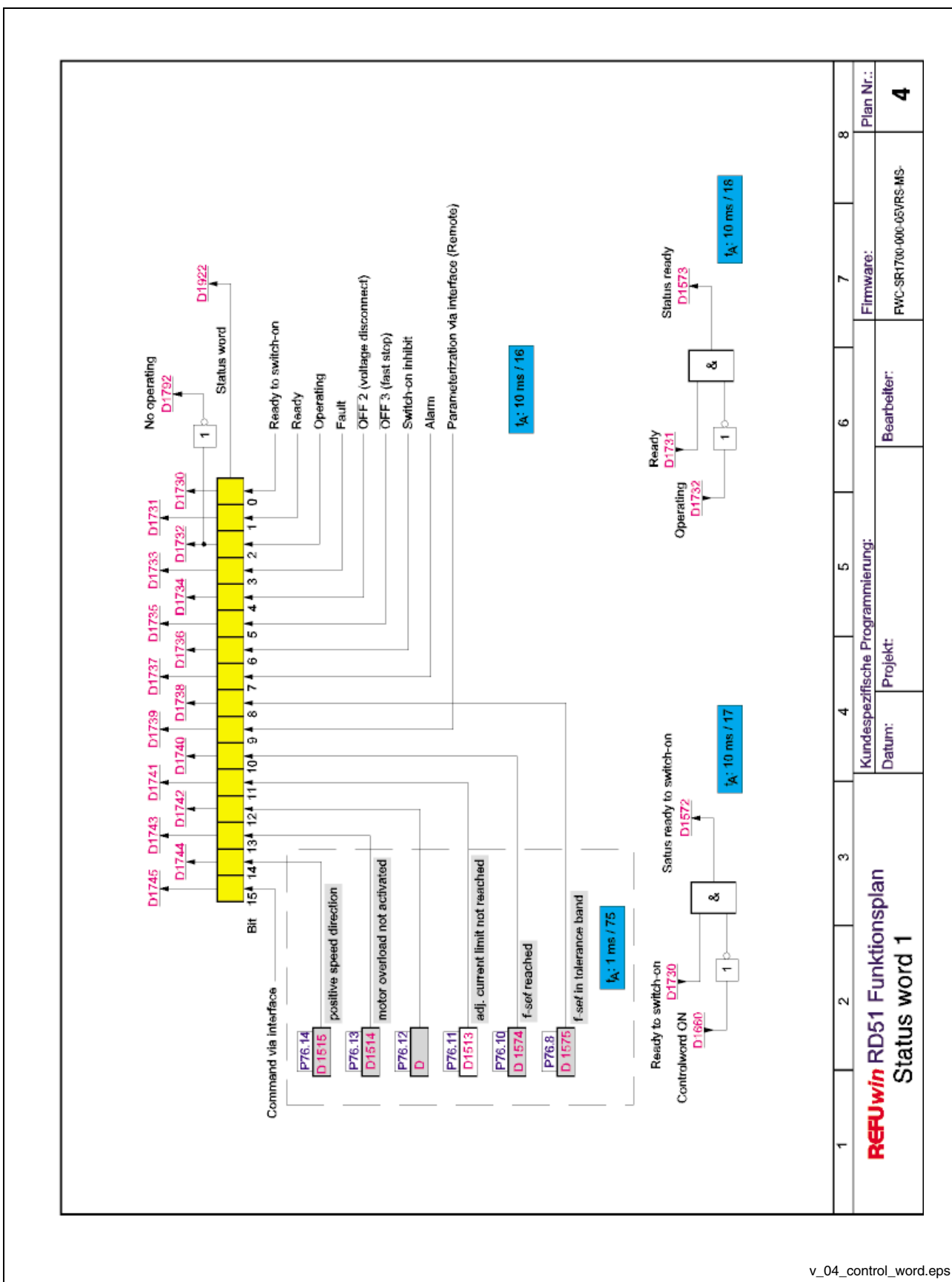
3.4 Maximum Values of parameters

The maximum values of the following parameters were modified:

Parameter	New maximum value (05VRS)	Former maximum value (04VRS)
P0104 (rated voltage induction motor ASM)	460 V	400 V
P0185.xx bis P0188.xx (voltage Ua .. Ud)	460 V	400 V

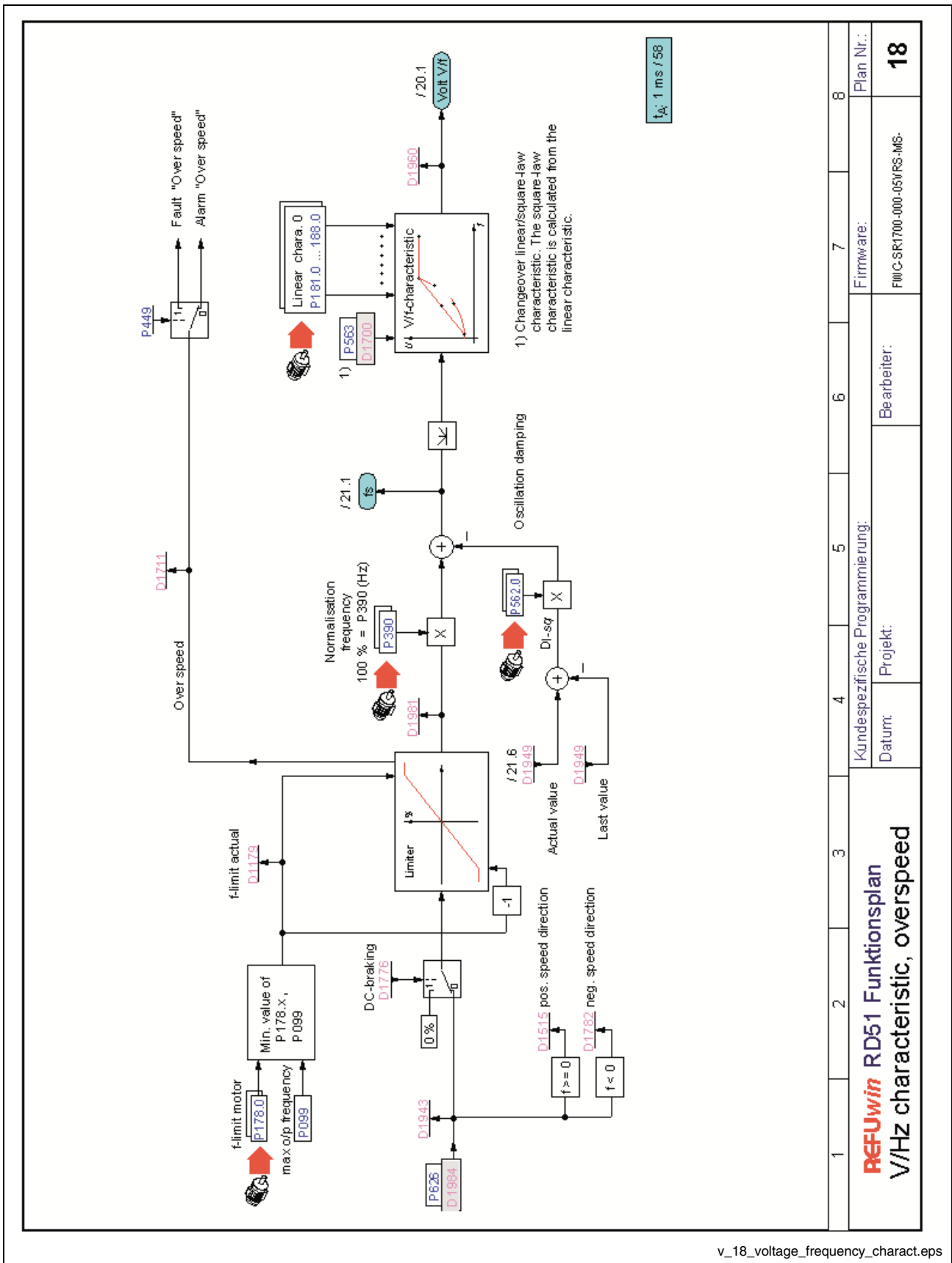
Fig. 3-3: New maximum values

4 Function diagrams



v_04_control_word.eps

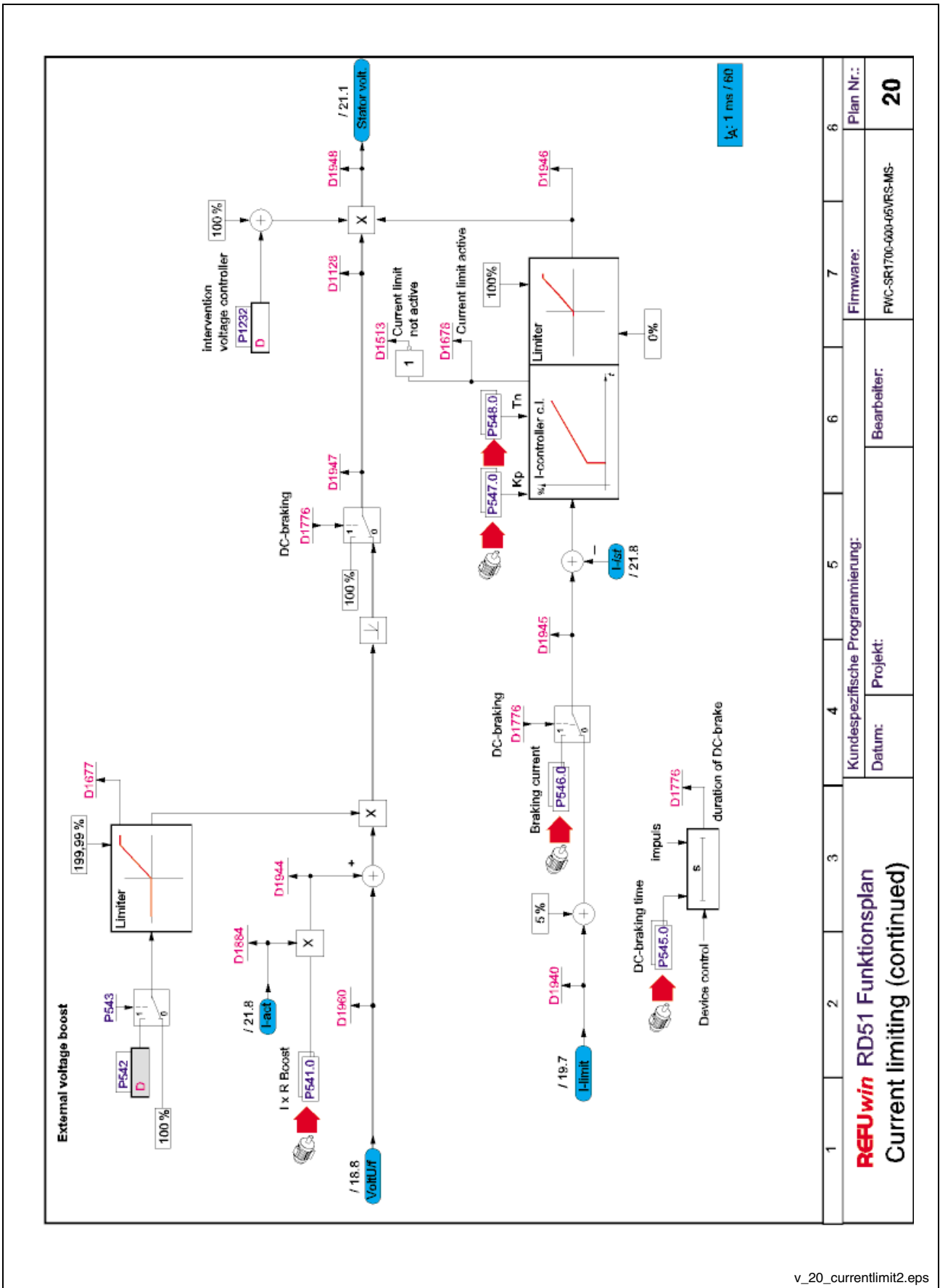
Fig. 4-1: Function diagram 04 – status word



v_18_voltage_frequency_charact.eps

Fig. 4-2: Function diagram 18 – V/Hz characteristic

1	2	3	4	5	6	7	8
REXROTH RD51 Funktionsplan V/Hz characteristic, overspeed			Kundenspezifische Programmierung:		Firmware:		Plan Nr.:
			Datum:	Projekt:	Bearbeiter:		F00C-SR1700-000-05VRS-MS- 18



v_20_currentlimit2.eps

Fig. 4-3: Function diagram 20 – current limiting

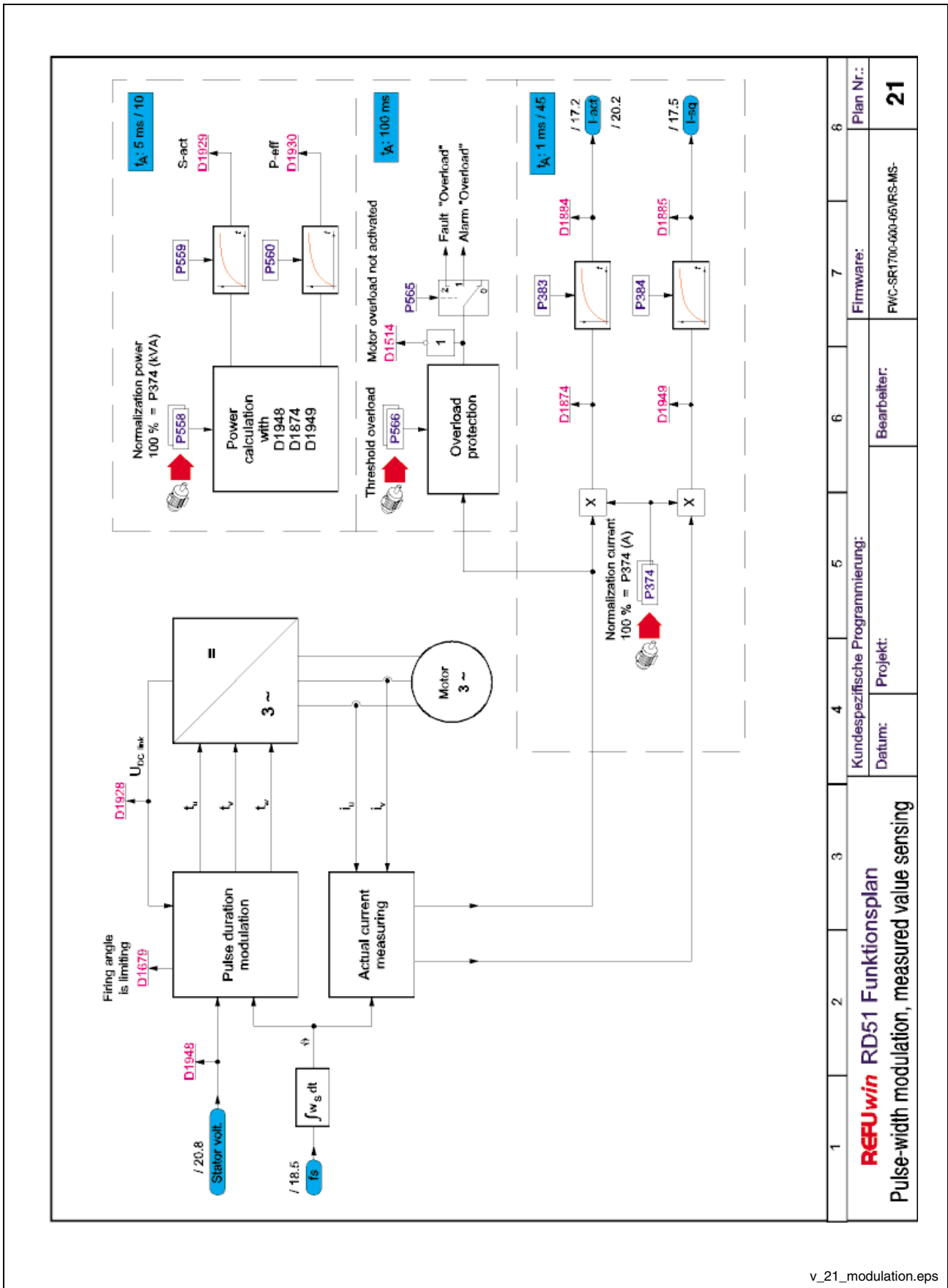


Fig. 4-4: Function diagram 21 - PWM Modulation

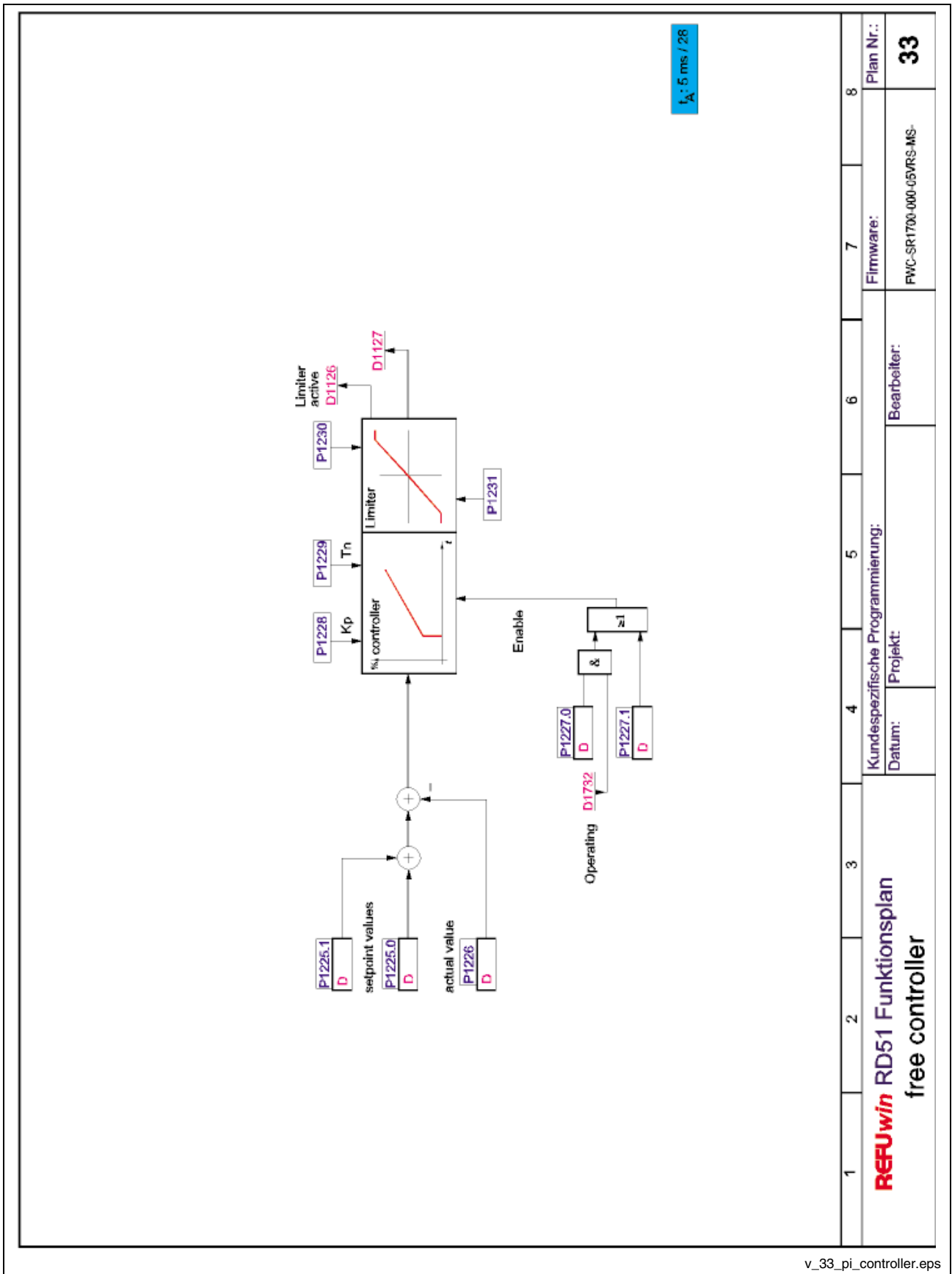
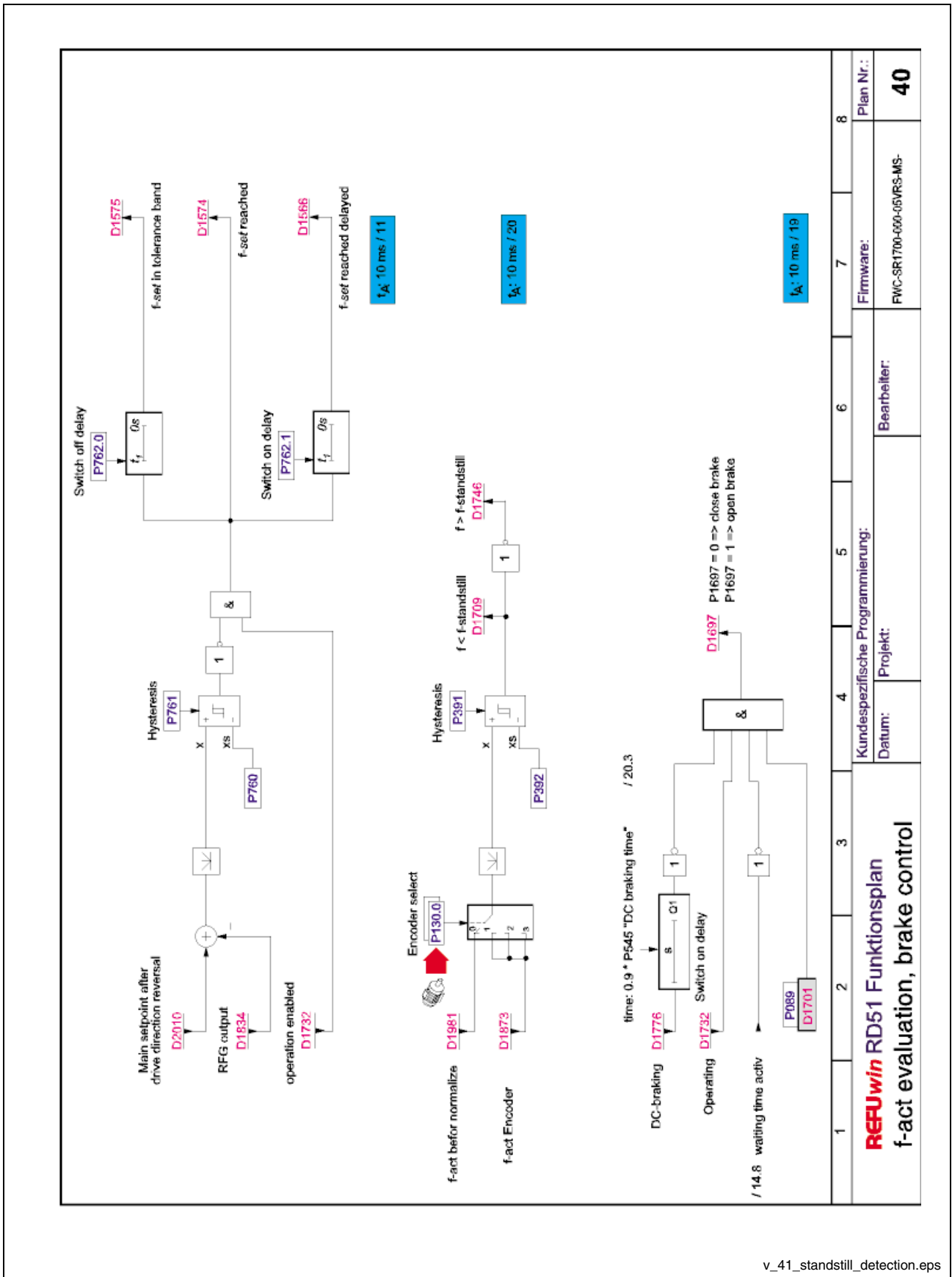


Fig. 4-5: Function 33 – free available PI controller



v_41_standstill_detection.eps

Fig. 4-6: Function diagram 41 – standstill detection

Bosch Rexroth AG
Electric Drives and Controls
P.O. Box 13 57
97803 Lohr, Germany
Bgm.-Dr.-Nebel-Str. 2
97816 Lohr, Germany
Phone +49 (0)93 52-40-50 60
Fax +49 (0)93 52-40-49 41
service.svc@boschrexroth.de
www.boschrexroth.com

