

# ASTAT controller

version AST10\_04, browser-version

# Crane motion Function diagrams

25-2200 A, 380-600 V



Section	Function Group
1	Identity
2	Run type
3	Supply information
4	Motor information
5	ASTAT configuration
6	Brake information
7	Speed feedback
8	Speed reference
9	Speed regulator
10	Speed supervision
11	Current/torque regulator
12	Rotor resistor
13	Selectable DO
14	Load functions
16	Soft limit switch function
17	Rotor system
18	Torque measurement
19	Positioning system
20	Master-follower
21	General logic and fault handling

Click the section number or group name to view the function group

Parameters are shown as <XX.XX>, signals as [XX.XX]. All parameters and signals in the diagrams are clickable, and are linked to a list where a short explanation can be found.

The black boxes found on some signals show that the signal is used in other places and they are linked together. If there are more than two of a specific signal there is a list to choose from attached to the first signal.

In the beginning of each section there is a parameter- and a signal list. The respective identities are clickable and linked to the first occurrence of the parameter or signal. If there is more than one parameter there is a list to choose from attached to the first parameter.

For navigating more easily there are buttons at the top of each page. Use these to back for forward. You can also choose a specific page to go to by clicking on one of the flaps at the bottom of the screen.

For each parameter there is a recommendation when to decide it and set the value. In the SET column you find D, S or X. A **D**-parameter should be set in the **Design**-phase. An **S**-parameter should be tuned at **Start Up**. **X**-parameters are only used for tuning with special requirements as well as for some special functions that are not touched at all for most installations.

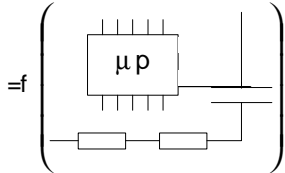
Description	MIN	MAX	NORM	SET	IDENTITY	English text
Motion identity.	1	255	1	D	0101	DR_ADD

Description	Unit	IDENTITY	English text
The version of the ASTAT program. AST10_04 is indicated by 10.04, etc. Older versions than AST10_02 will give 00.00	-	0151	AST_VERS
The generation of control board DAPC 100. AST10_04 can be run on at least generation 1 and 2 of DAPC 100.	-	0152	BOARDGEN
The version of software of Rotor measurement unit DATX 130. Version 1 is labelled <b>R1</b> , version 2 is labelled <b>R2</b> etc. The signal gives a value 0, 2, 3..... Value 15 is given when no DATX 130 is used (i. e. for DARA 1000) and for earlier versions than R2. Value 2 is given for version R2, value 3 is given for version R3 etc. Version of ASTAT program AST10_04 (see signal <b>01.51</b> above) requires software version R2 of DATX 130.	-	0153	RSW_GEN
The version of software of Torque measurement unit DATX 132. Version 1 is labelled <b>T1</b> , version 2 is labelled <b>T2</b> etc. The signal gives a value 0, 2, 3..... Value 15 is given when no DATX 132 is used (i. e. for DARA 1000) and for earlier versions than T2. Value 2 is given for version T2, value 3 is given for version T3 etc. Version of ASTAT program AST10_04 (see signal <b>01.51</b> above) requires software version T2 of DATX 132.	-	0154	TSW_GEN

<01.01>  
DR\_ADD

D=XXXX

[01.51]  
AST\_VERS



[01.52]  
BOARDGEN



[01.53]  
RSW\_GEN



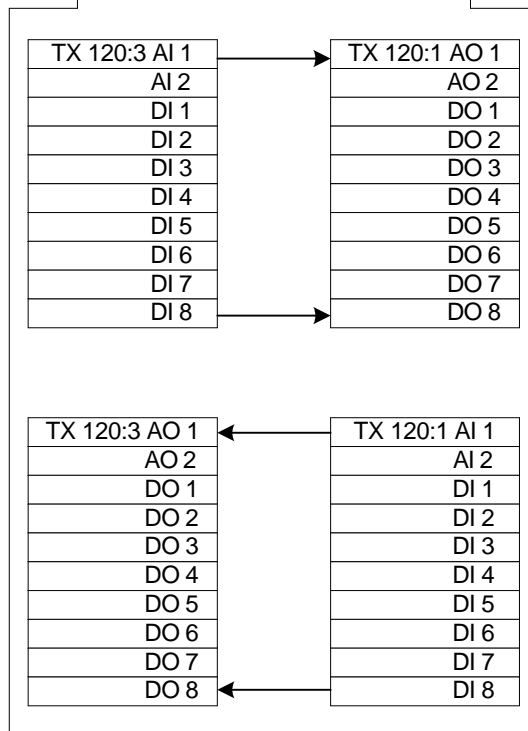
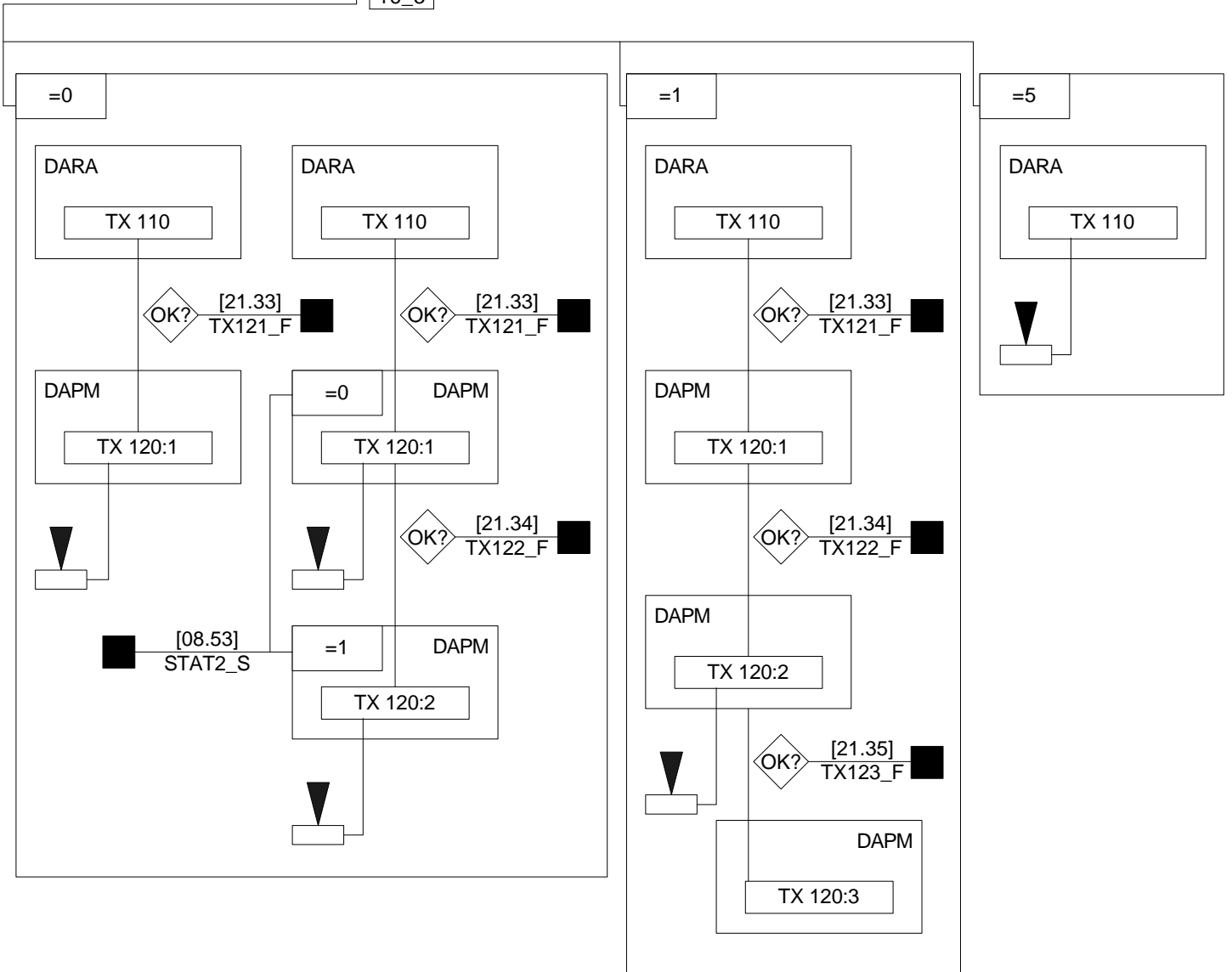
[01.54]  
TSW\_GEN

Description	MIN	MAX	NORM	SET	IDENTITY	English text
Delivered as <b>5</b> for duty with master switch connected direct to DARA without cabin I/O. Set <b>0</b> for installation with one or two cabin I/O for master switch connection. Set <b>1</b> for one cabin I/O for master switch and two for mirror wise signal transfer. Set <b>5</b> for installations without cabin I/O.	0	5	5	D	0201	RUN_TYPE

Description	Unit	IDENTITY	English text

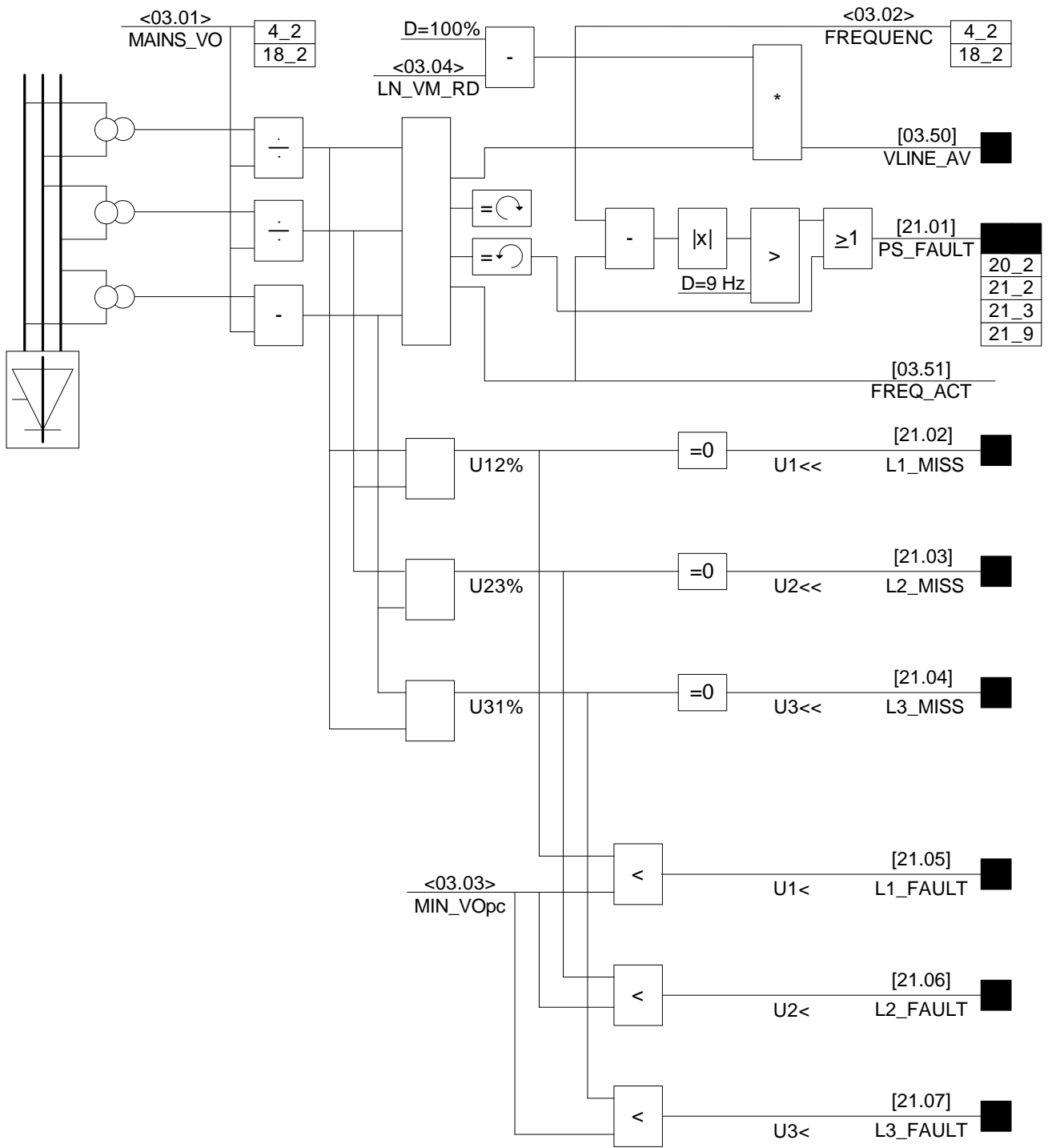
<02.01>  
RUN\_TYPE

5_6
7_2
8_3
16_3



Description	MIN	MAX	NORM	SET	IDENTITY	English text
Line and motor nominal voltage. Unit: V.	380	600	400	D	0301	MAINS_VO
It is delivered as <b>50</b> and can be set to either 50 or 60. Unit: Hz.	50	50/60	50	D	0302	FREQUENC
The smallest voltage that is accepted before the motion is stopped.	70	100	80	S	0303	MIN_Vopc
Line voltage measurement transformer step down. Example: a 3,3 kV line voltage Thyristor Module requires a step down of 100% = 82%. The step down transformer shall have the ratio 3300 : 600. Parameter <b>0301</b> shall be set to 600. Also the motor voltage measurement requires a step down transformer of the same type.	0	100	0	D	0304	LN_VM_RD

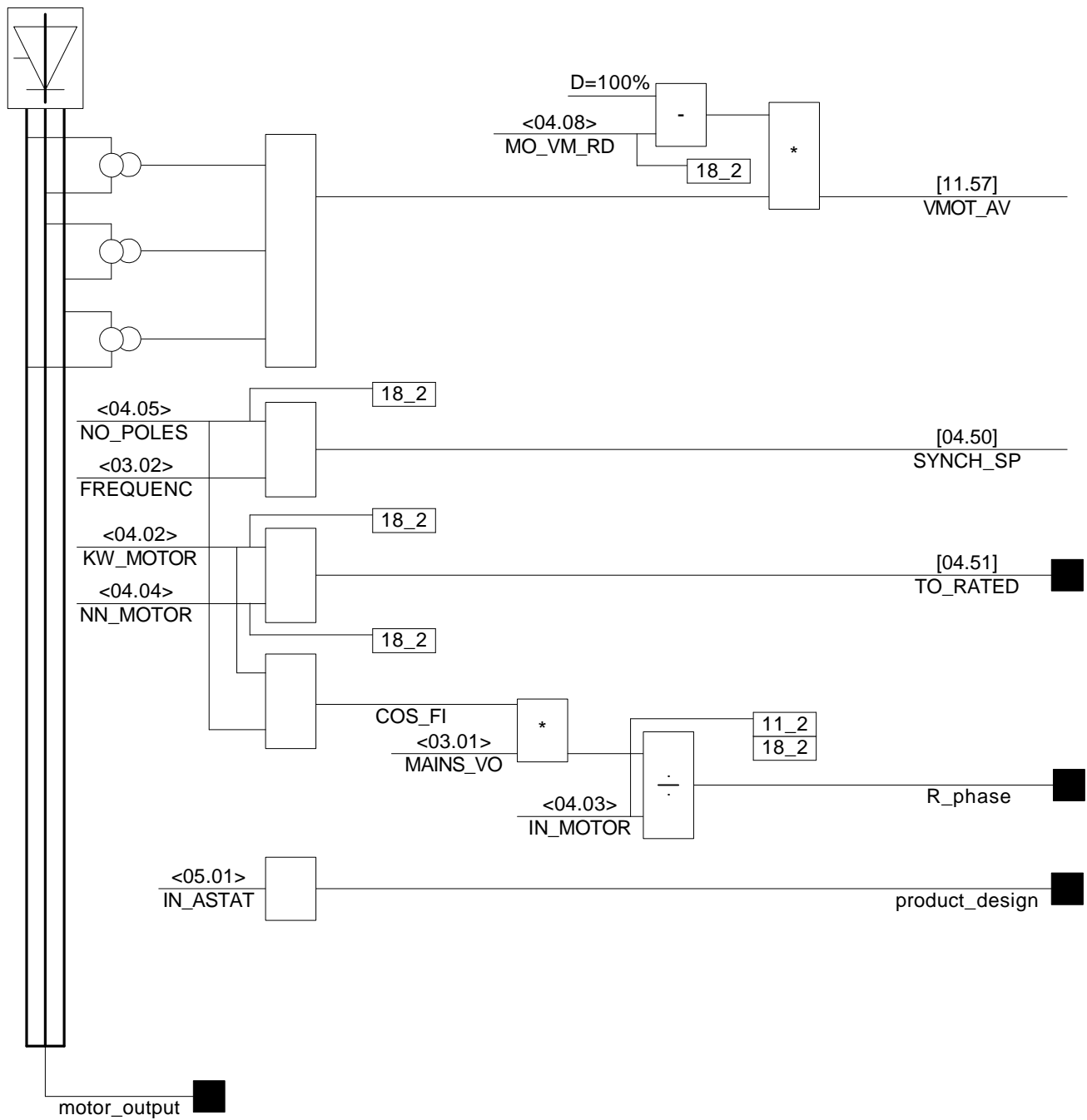
Description	Unit	IDENTITY	English text
Actual line voltage	V	0350	VLINE_AV
Actual line frequency	Hz	0351	FREQ_ACT

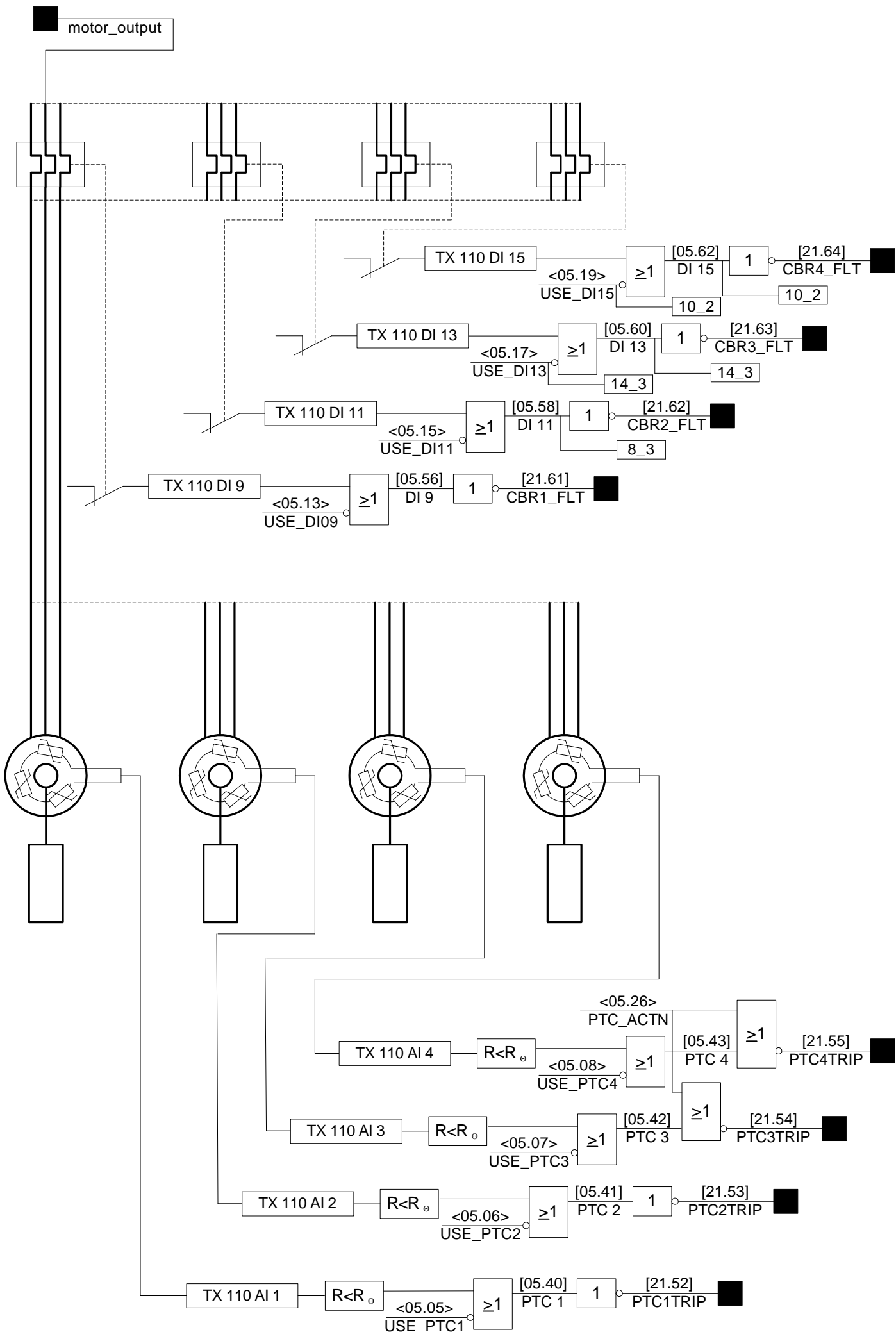


Description	MIN	MAX	NORM	SET	IDENTITY	English text
Numbers of connected motors.	1	16	1	D	0401	NO_MOTOR
Rated kW of each motor.	1	2000	1	D	0402	kW_MOTOR
Rated current of each motor. Unit: A.	1	2200	1	D	0403	IN_MOTOR
The motor's or motors' rated speed in min <sup>-1</sup> .	340	3600	980	D	0404	NN_MOTOR
Number of poles.	2	16	6	D	0405	NO_POLES
Pull out Torque of the motor in per cent of the rated torque.	150	400	250	D	0406	MAX_TOpC
Rated rotor voltage of the motor(s). The voltage is only used for supervision of resistors and the rotor and is of this reason only interesting for DARA 1001, 1010	50	600	350	D	0407	U_ROTOR
Motor voltage measurement transformer step down. Example: a 3,3 kV line voltage Thyristor Module requires a step down of 100% = 82%. The step down transformer shall have the ratio 3300 : 600. Parameter <b>0301</b> shall be set to 600. Also the line voltage measurement requires a step down transformer of the same type.	0	100	0	D	0408	MO_VM_RD
Motor(s) stator connection. 0: Star connection. 1: Delta connection. Most motors are Delta connected. For control it is only of importance for DARA 1001 and 1010, but it is good to keep record of the installed motors for all installations.	0	1	1	D	0412	MOT_CONN

Description	Unit	IDENTITY	English text
Synchronous motor speed	RPM (min <sup>-1</sup> )	0450	SYNCH_SP
Rated motor torque	Nm	0451	TO_RATED







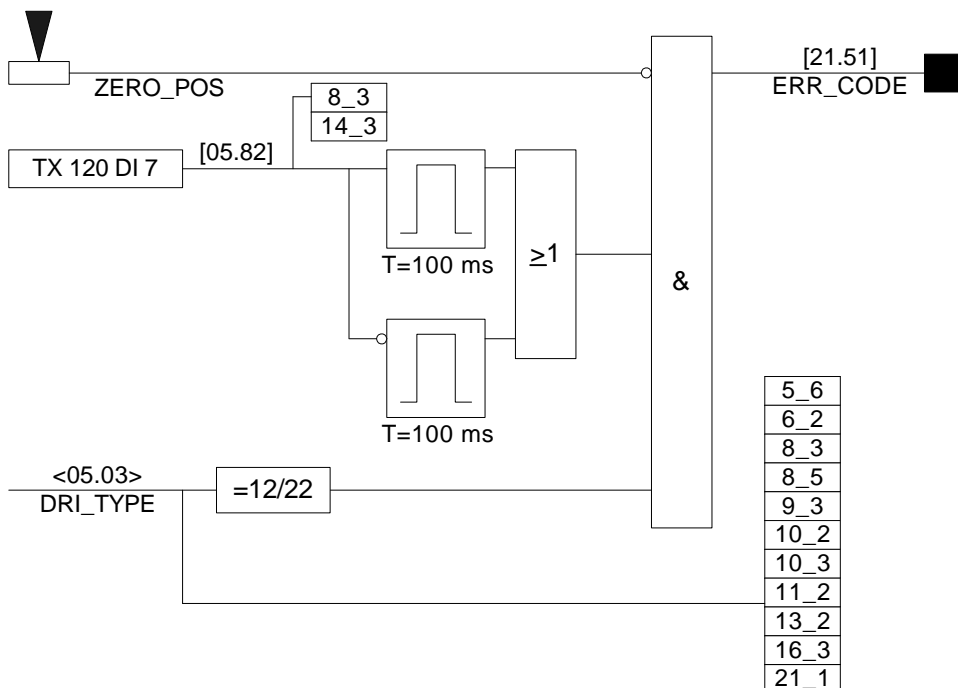
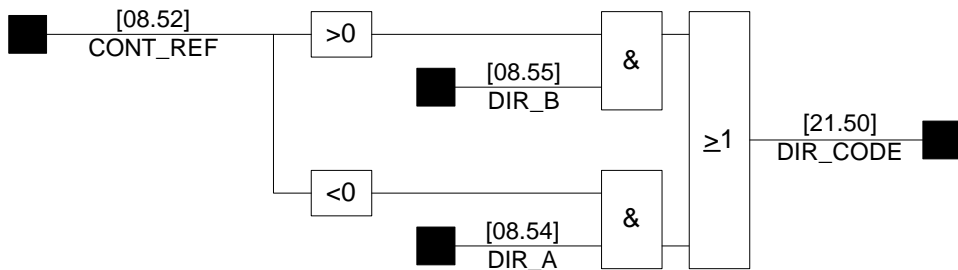
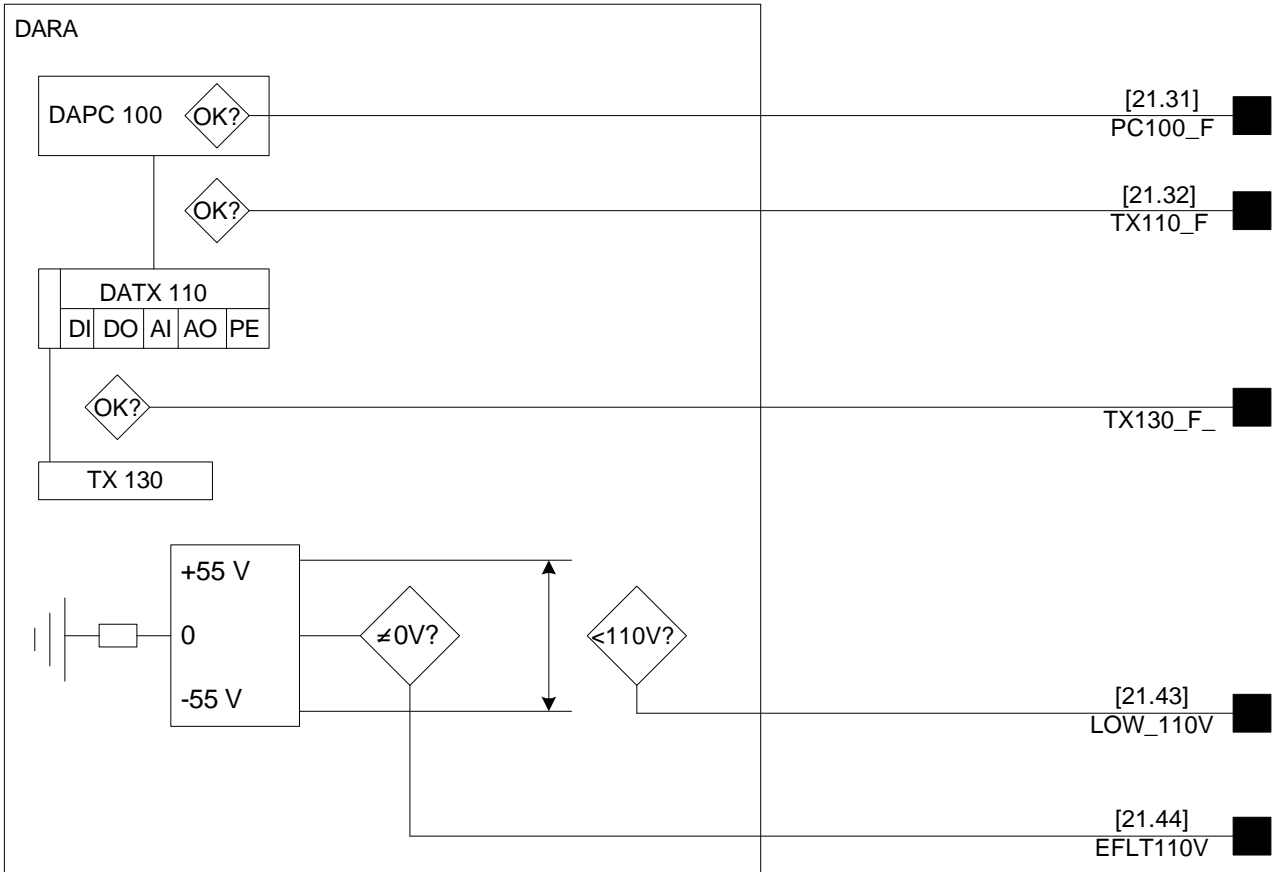
Description	MIN	MAX	NORM	SET	IDENTITY	English text
<b>Rated current</b> of the Thyristor module. In case of Parallel bridge combination, Ie is the sum of the two units together. Unit: A.	25	2200	25	D	0501	IN_ASTAT
<b>Type of Control System Module.</b> For DARA 1000 or DARA 1010, enter 1000. For DARA 1001, enter 1001.	1000	1001	1000	D	0502	DARA
Parameter to set whether the configuration shall be <b>11</b> for "Hoist without Shared Motion", <b>12</b> for "Hoist with Shared Motion", <b>21</b> for "Travel without Shared Motion", or <b>22</b> for "Travel with Shared Motion".	11, 12, 21, 22	11, 12, 21, 22	11	D	0503	DRI_TYPE
<b>Type of limit switch</b> for movements. <b>1:</b> Classic based on four switches. <b>2:</b> Soft based on Pulse transmitter. <b>0:</b> Override limit switches, block fault detection (only for rescue purpose)	1	2	1	D	0504	L_SW_TYP
Parameter group set to define whether a input shall be active or not. 1 if used.	0	1	1	D	0505	USE_PTC1
Parameter group set to define whether a input shall be active or not. 1 if used.	0	1	1	D	0506	USE_PTC2
Parameter group set to define whether a input shall be active or not. 1 if used.	0	1	1	D	0507	USE_PTC3
Parameter group set to define whether a input shall be active or not. 1 if used.	0	1	1	D	0508	USE_PTC4
Parameter group set to define whether a input shall be active or not. 1 if used.	0	1	1	D	0509	USE_DI05
Parameter group set to define whether a input shall be active or not. 1 if used.	0	1	1	D	0510	USE_DI06
Parameter group set to define whether a input shall be active or not. 1 if used.	0	1	1	D	0511	USE_DI07
Parameter group set to define whether a input shall be active or not. 1 if used.	0	1	1	D	0512	USE_DI08
Parameter group set to define whether a input shall be active or not. 1 if used.	0	1	1	D	0513	USE_DI09
Parameter group set to define whether a input shall be active or not. 1 if used.	0	1	1	D	0514	USE_DI10
Parameter group set to define whether a input shall be active or not. 1 if used.	0	1	1	D	0515	USE_DI11
Parameter group set to define whether a input shall be active or not. 1 if used.	0	1	1	D	0516	USE_DI12
Parameter group set to define whether a input shall be active or not. 1 if used.	0	1	1	D	0517	USE_DI13
Parameter group set to define whether a input shall be active or not. 1 if used.	0	1	1	D	0518	USE_DI14
Parameter group set to define whether a input shall be active or not. 1 if used.	0	1	1	D	0519	USE_DI15
Parameter group set to define whether a input shall be active or not. 1 if used.	0	1	1	D	0520	USE_DI16
Parameter group set to define whether a input shall be active or not. 1 if a rotor of a motor is connected to board DATX 130 -X1 contact	0	1	0	X	0521	USE_ROT1
Parameter group set to define whether a input shall be active or not. 1 if a rotor of a motor is connected to board DATX 130 -X2 contact	0	1	0	X	0522	USE_ROT2
Parameter group set to define whether a input shall be active or not. 1 if a rotor of a motor is connected to board DATX 130 -X3 contact	0	1	0	X	0523	USE_ROT3
Parameter group set to define whether a input shall be active or not. 1 if a rotor of a motor is connected to board DATX 130 -X4 contact	0	1	0	X	0524	USE_ROT4
Which motor is active for speed feedback for Rotor feedback. 1 for first input to DATX 130, 2 for second, 3 for third and 4 for fourth input to DATX 130. value has no importance if other speed feedback is used.	0	4	1	D	0525	ROTOR_FB
With PTC_ACTN = 1, a high resistance value for PTC3 or PTC4 gives a trip. PTC1 or PTC2 always give a trip. With PTC_ACTN = 0, a high resistance value for PTC3 or PTC4 only gives a flashing indication.	0	1	1	D	0526	PTC_ACTN

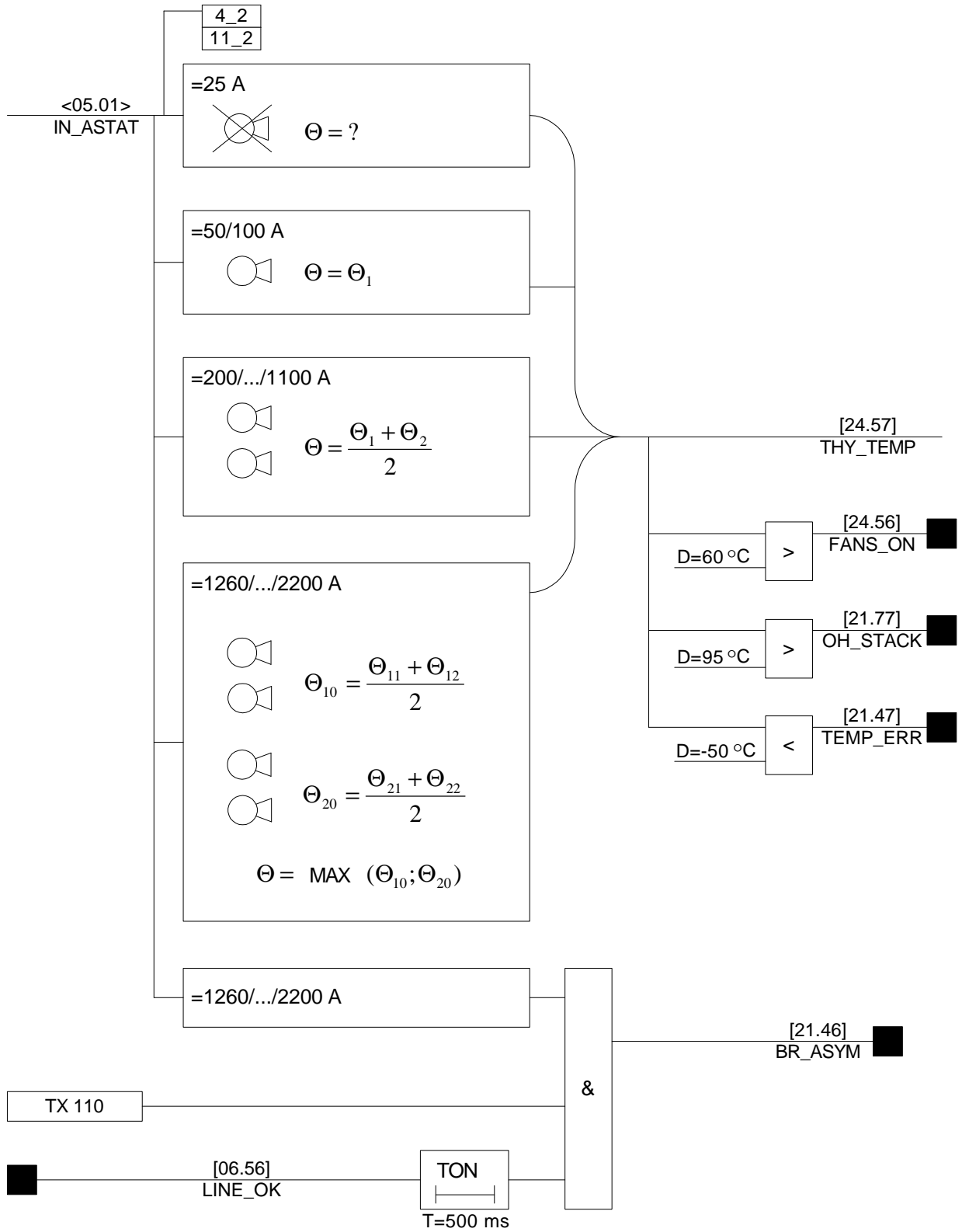
Description	MIN	MAX	NORM	SET	IDENTITY	English text
<p>With STA2_PA2 = 0, a high value (=110 V) on DI no.3 on process I/O board DATX 110 will use DI no.3 to select between operators station number two out of number one and number two.</p> <p>With STA2_PA2 = 1, a low value (=0 V) on DI no.3 on process I/O board DATX 110 will use parameter sets 1 and 2. The selection between Sets 1 and 2 is made with DI no.4.</p> <p>With STA2_PA2 = 1, a high value (=110 V) on DI no.3 on process I/O board DATX 110 will use parameter sets 3 and 4. The selection between Sets 3 and 4 is made with DI no.4.</p> <p>STA2_PA2 = 1 is not possible for Shared motion.</p> <p>STA2_PA2 = 1 is not possible for duty with master switch connected direct to DARA I/O; RUN_TYPE=5.</p>	0	1	0	D	0527	STA2_PA2
<p>Control AO no. 1 of process I/O board DATX 110.</p> <p>Value = 0: 0 V = 0% actual line current +10 V = 400% actual line current</p> <p>Value = 1: -10 V = -200% speed reference +10 V = +200% speed reference</p>	0	1	0	D	0529	SELECT_A
<p>Control AO no. 2 of process I/O board DATX 110.</p> <p>Value = 0: -10 V = -400% torque reference +10 V = +400% torque reference</p> <p>Value = 1: <u>Parameter 14.30 TWIN_OVL = 0</u> -10 V = -200% actual speed +10 V = +200% actual speed <u>Parameter 14.30 TWIN_OVL = 1</u> Load in Weight Units</p>	0	1	0	D	0530	SELECT_B
Scale factor for putting out actual speed to DATX 110, AO 2.	0	100	100	X	0531	SPEED_SC
Time in ms after Crane ON (DATX 110 DI 1) that a reset fault signal is generated	0	32000	650	X	0533	ON_DEL1
Time in ms after elapse of time 05.33 that the controller is ready to move	0	32000	100	X	0534	ON_DEL2

Description	Unit	IDENTITY	English text
Process I/O analog input No. 01. PTC No. 1; 1: Temp. OK. Also 1 when parameter 0505 is set to 0.	Bool	0540	EFF_PTC1
Process I/O analog input No. 02. PTC No. 2; 1: Temp. OK. Also 1 when parameter 0506 is set to 0.	Bool	0541	EFF_PTC2
Process I/O analog input No. 03. PTC No. 3; 1: Temp. OK. Also 1 when parameter 0507 is set to 0.	Bool	0542	EFF_PTC3
Process I/O analog input No. 04. PTC No. 4; 1: Temp. OK. Also 1 when parameter 0508 is set to 0.	Bool	0543	EFF_PTC4

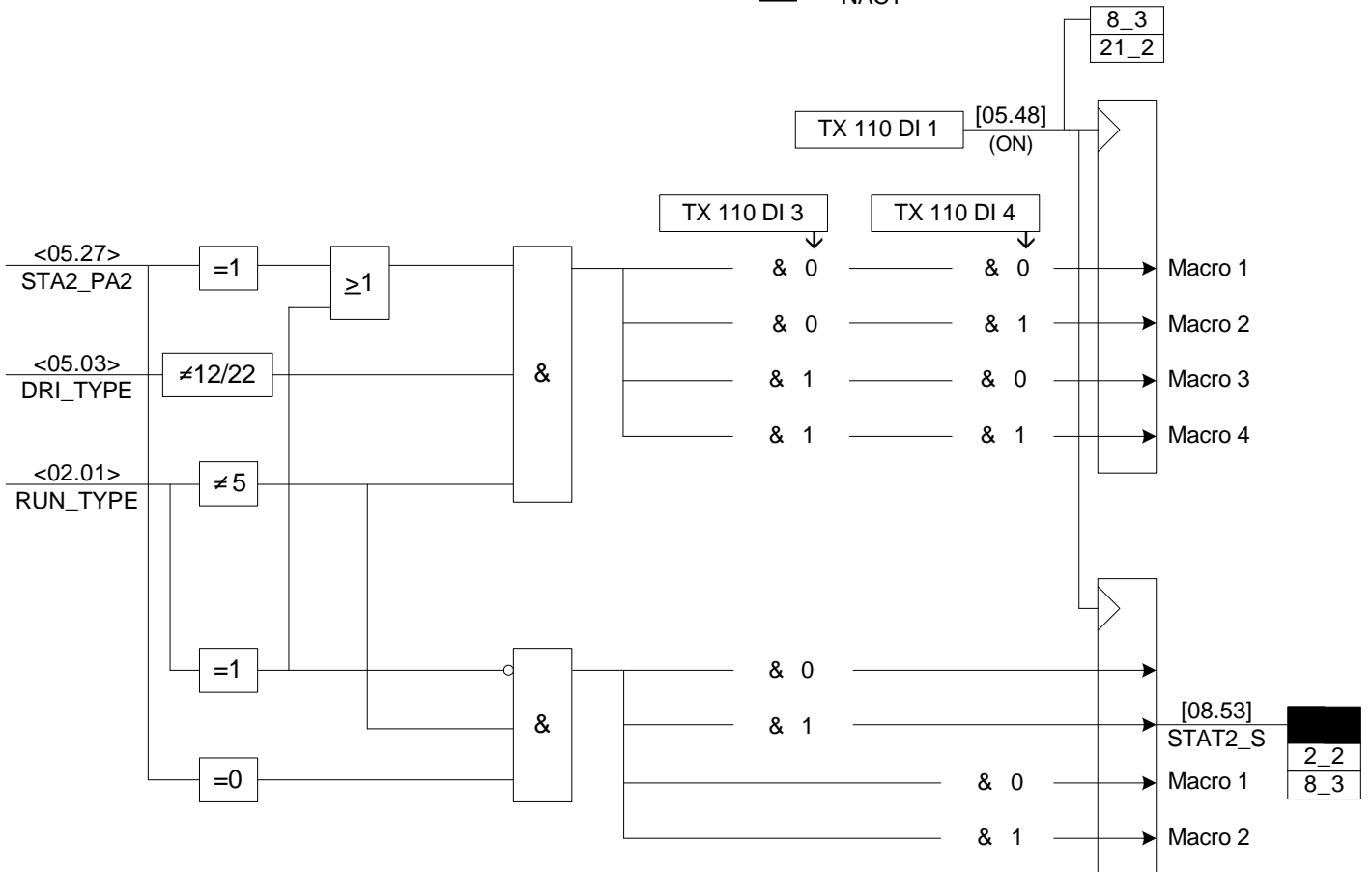
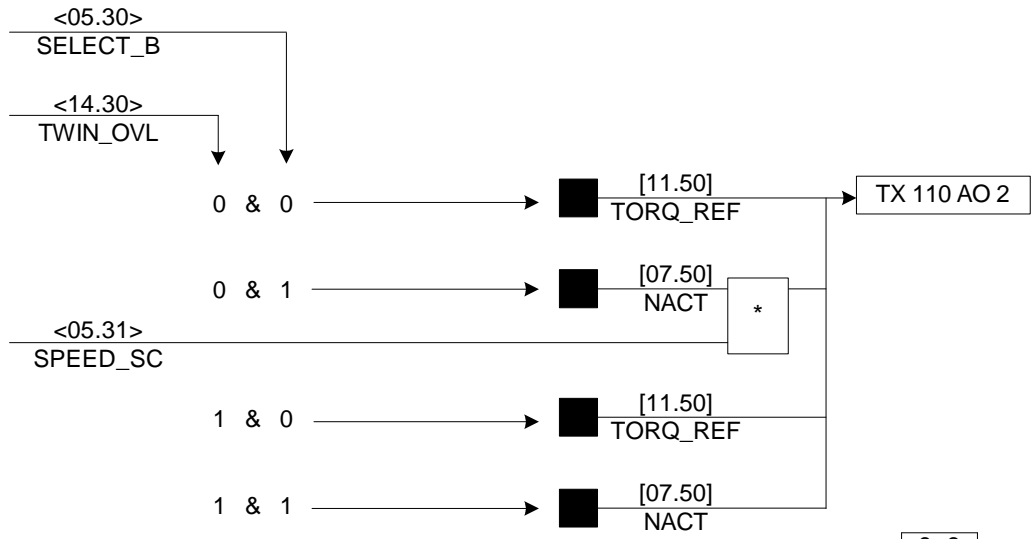
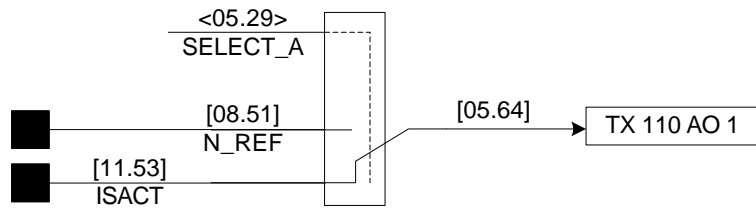
Description	Unit	IDENTITY	English text
Process I/O analog input No. 05. Load cell (for system with Cabin I/O) / speed reference (for system with master switch connected direct to DARA I/O).	V	0544	AIN05_1
Process I/O analog input No. 06. Additional speed reference without any ramp.	V	0545	SPREF_NR
Process I/O analog input No. 07. Additional torque reference without any ramp.	V	0546	TQREF_NR
Process I/O analog input No. 08. Speed feedback from tacho generator. Range 10 V: Value 32767 = 10 V. Range 50 V: Value 32767 = 58,7 V. Range 100 V: Value 32767 = 107,3 V DATX 110 -X6:7-8 AI 8(8)	Value	0547	NFEEDBTG
Process I/O DI No. 01. Pilot signal for crane contactor ON.	Bool	0548	ON
Process I/O DI No. 02. For fault reset without making Crane ON.	Bool	0549	LO_RESET
Process I/O DI No. 03. Hoist + remote I/O: Macro selection. Hoist without remote I/O: Master switch in neutral. Travel + remote I/O: Macro selection. Travel without remote I/O: Master switch in neutral	Bool	0550	DIN03_1
Process I/O DI No. 04. Hoist + remote I/O: Macro selection. Hoist without remote I/O: Master switch, full speed. Travel + remote I/O: Macro selection. Travel without remote I/O: Master switch, full speed	Bool	0551	DIN04_1
Process I/O DI No. 05. Also 1 when parameter 0509 is set to 0. Pre limit switch A.	Bool	0552	EFF_DI05
Process I/O DI No. 06. Also 1 when parameter 0510 is set to 0. Pre limit switch B.	Bool	0553	EFF_DI06
Process I/O DI No. 07. Also 1 when parameter 0511 is set to 0. Stop limit switch A.	Bool	0554	EFF_DI07
Process I/O DI No. 08. Also 1 when parameter 0512 is set to 0. Stop limit switch B.	Bool	0555	EFF_DI08
Process I/O DI No. 09. Also 1 when parameter 0513 is set to 0. Hoist + remote I/O: Relay 1. Hoist without remote I/O: Relay. Travel + remote I/O: Relay 1. Travel without remote I/O: Relay 1	Bool	0556	EFF_DI09
Process I/O DI No. 10. Also 1 when parameter 0514 is set to 0. Hoist + remote I/O: Brake lifter 1. Hoist without remote I/O: Brake lifter. Travel + remote I/O: Brake lifter 1. Travel without remote I/O: Brake lifter	Bool	0557	EFF_DI10
Process I/O DI No. 11. Also 1 when parameter 0515 is set to 0. Hoist + remote I/O: Relay 2. Hoist without remote I/O: Master switch direction A. Travel + remote I/O: Relay 2. Travel without remote I/O: Master switch direction A	Bool	0558	EFF_DI11
Process I/O DI No. 12. Also 1 when parameter 0516 is set to 0. Hoist + remote I/O: Brake lifter 2. Hoist without remote I/O: Master switch direction B. Travel + remote I/O: Brake lifter 2. Travel without remote I/O: Master switch direction B	Bool	0559	EFF_DI12
Process I/O DI No. 13. Also 1 when parameter 0517 is set to 0. Hoist + remote I/O: Overload, contact. Hoist without remote I/O: Overload, contact. Travel + remote I/O: Relay 3. Travel without remote I/O: Relay 2	Bool	0560	EFF_DI13
Process I/O DI No. 14. Also 1 when parameter 0518 is set to 0. Hoist + remote I/O: Brake lifter 3. Hoist without remote I/O: Master switch, step 2. Travel + remote I/O: Brake lifter 3. Travel without remote I/O: Master switch, step 2	Bool	0561	EFF_D14
Process I/O DI No. 15. Also 1 when parameter 0519 is set to 0. Hoist + remote I/O: Overspeed monitor, switch. Hoist without remote I/O: Overspeed monitor, switch. Travel + remote I/O: Relay 4. Travel without remote I/O: -	Bool	0562	EFF_DI15
Process I/O DI No. 16. Also 1 when parameter 0520 is set to 0. Hoist + remote I/O: Brake lifter 4. Hoist without remote I/O: Master switch, step 3. Travel + remote I/O: Brake lifter 4. Travel without remote I/O: Master switch, step 3	Bool	0563	EFF_DI16

Description	Unit	IDENTITY	English text
Process I/O analog output No. 01. Line current in % of the connected motor(s) rated current. 10 V = 400% if parameter 05.29 = 0. Speed reference in %. 10 V = 200% if parameter 05.29 = 1	V	0564	AO01_1
Process I/O analog output No. 02. Torque reference in % of the motor(s) rated torque. +10 V = +400% if parameter 05.30 = 0. Actual speed in %. 10 V = 200% if parameter 05.30 = 1. If parameter 14.30 = 1, this AO is taken over by the Load functions, and the output value in Volt has another interpretation.	V	0565	AO02_1
Process I/O DO No. 01. Rotor contactor K0 / Cable reel contactor / Thyristor fan.	Bool	0566	DO01_1
Process I/O DO No. 02. Rotor contactor K1	Bool	0567	RCON_K1
Process I/O DO No. 03. Rotor contactor K2	Bool	0568	RCON_K2
Process I/O DO No. 04. Rotor contactor K3	Bool	0569	RCON_K3
Process I/O DO No. 05. Brake lift	Bool	0570	BR_LIFT
Process I/O DO No. 06. Delayed brake lift	Bool	0571	DBR_LIFT
Process I/O DO No. 07. A fault has occurred.	Bool	0572	FAULT
Process I/O DO No. 08. Normal: No dangerous Fault. Shared motion: Motion 2 selected	Bool	0573	SH_MOT
Cabin I/O analog input No. 01. Analog continuous reference from Master switch. (100% ref.=synch. speed). For motion No. 1 of shared motion.	%	0574	AIN01_AC
Cabin I/O analog input No. 02. Analog continuous reference from Master switch. (100%ref.=synch. speed). For motion No. 2 of shared motion.	%	0575	AIN02_AC
Active Cabin I/O DI No. 01. Master switch in neutral position.	Bool	0576	DIN01_AC
Active Cabin I/O DI No. 02. Master switch in direction A.	Bool	0577	DIN02_AC
Active Cabin I/O DI No. 03. Master switch in direction B.	Bool	0578	DIN03_AC
Active Cabin I/O DI No. 04. Hoist: By-pass speed limitation due to slack rope. Travel: Lift the brakes	Bool	0579	DIN04_AC
Active Cabin I/O DI No. 05. Master switch, step 2.	Bool	0580	DIN05_AC
Active Cabin I/O DI No. 06. Master switch, step 3.	Bool	0581	DIN06_AC
Active Cabin I/O DI No. 07. Hoist: Tare of load indicator. Travel Master switch, step 4 (of five steps)	Bool	0582	DIN07_AC
Active Cabin I/O DI No. 08. Master switch, full speed	Bool	0583	DIN08_AC
Cabin I/O analog output No. 01. Load torque in % of motors rated torque. -400%...0...+400% of rated torque.	%	0584	AO01_C
Cabin I/O analog output No. 02. Actual speed -200%...0...+200% of synchronous speed.	%	0585	AO02_C
Cabin I/O DO No. 01. High temperature thermistor (Fixed light: trip, flash light: warning)	Bool	0586	DO01_C
Cabin I/O DO No. 02. Limit switch brake lifter acknowledge error.	Bool	0587	DO02_C
Cabin I/O DO No. 03. Trip thermal relay	Bool	0588	DO03_C
Cabin I/O DO No. 04. Fault in rotor or speed measurement	Bool	0589	DO04_C
Cabin I/O DO No. 05. Hoist: To high load to lift (Fixed light: Blocked, flash light: warning). Travel with SwayControl: Running with Hoist 1	Bool	0590	DO05_C
Cabin I/O DO No. 06. Hoist: trip overspeed monitor. Travel with SwayControl: Running with Hoist 2	Bool	0591	DO06_C
Cabin I/O DO No. 07. High temperature in thyristor stack.	Bool	0592	DO07_C
Cabin I/O DO No. 08. Fixed light: ASTAT OK. Flash light: Check error code in ASTAT controller.	Bool	0593	DO08_C
Conditions to rotate thyristor cooling fans. Note Group!	Bool	2456	FANS_ON
Temperature in degree C of thyristor cooler (only for Thyristor modules with fans). Note Group!	Value	2457	THY_TEMP



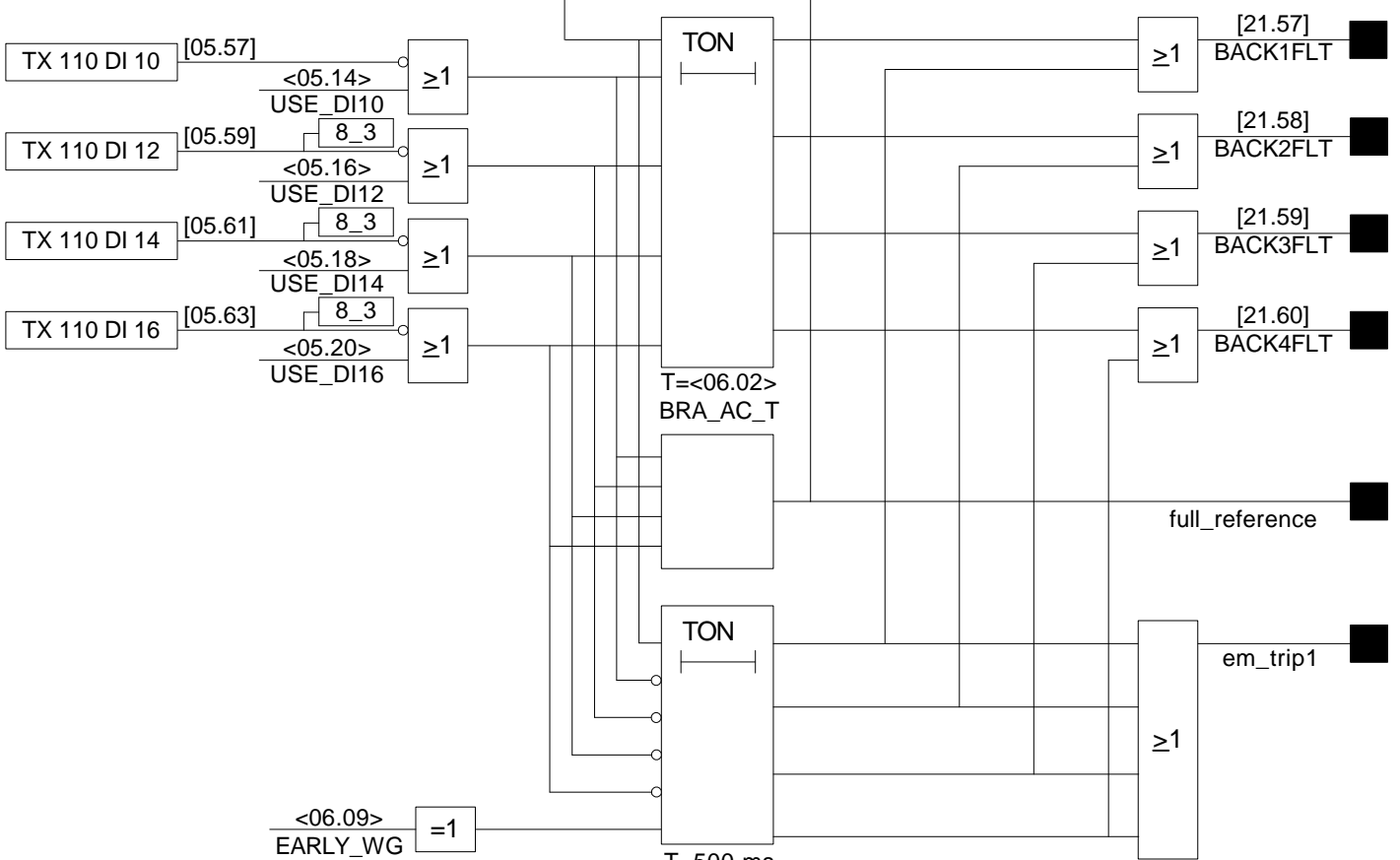
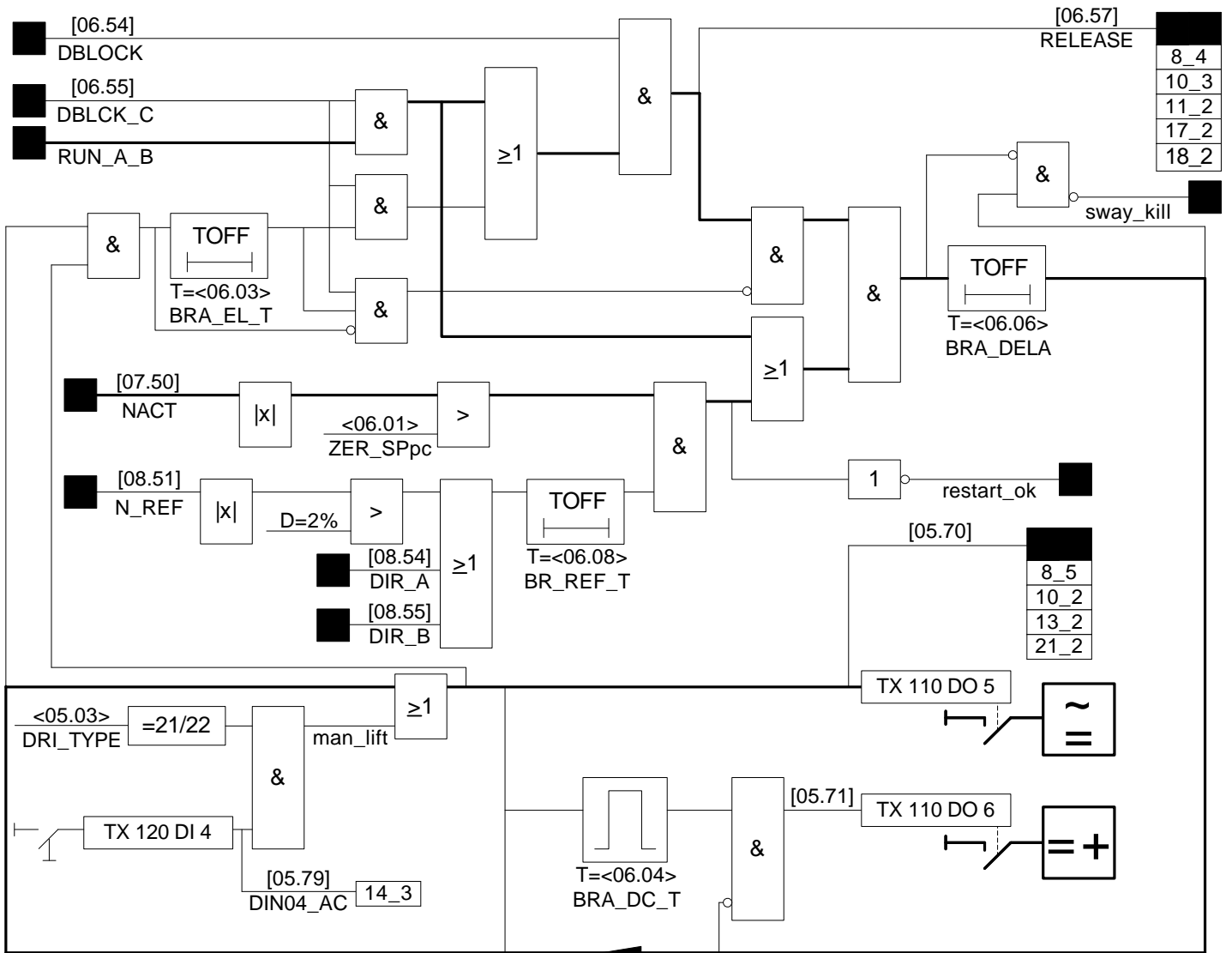






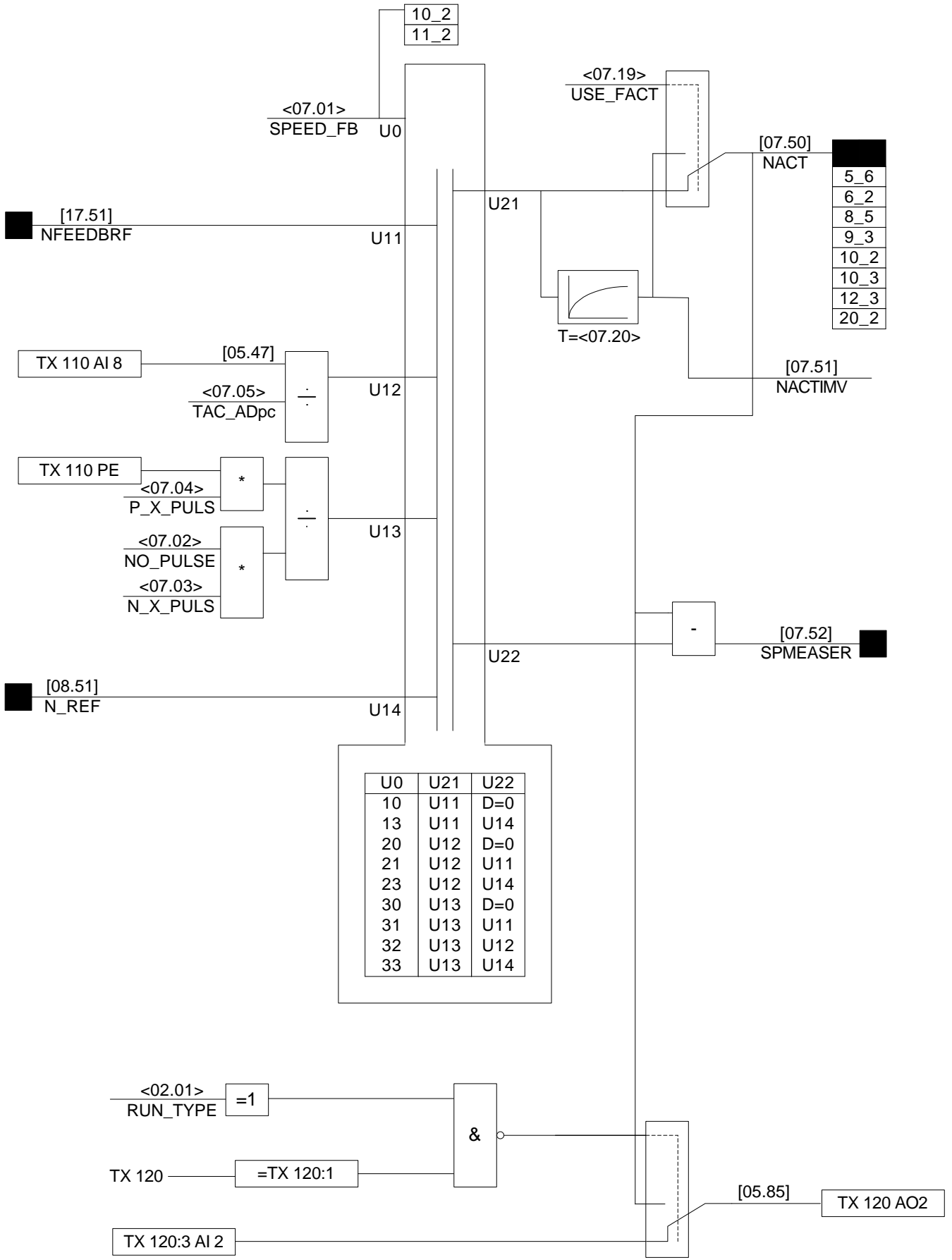
Description	MIN	MAX	NORM	SET	IDENTITY	English text
Speed at which the mechanical brakes is applied. As a percentage of the synchronous speed 0 ..10%. Normal 2%.	0	10	2	S	0601	ZER_SPpc
Time in which the brake must reach open position; otherwise there is a fault. 0,1 ... 10 seconds. Normal is 1 second = 1000 ms. <b>Set time in ms.</b>	100	10000	1000	D	0602	BRA_AC_T
Time, corresponding to at least normal closing time for the brake, during which the motor will be held with electrical torque after order to close brake. 0,1 .. 1,0 seconds. Normal is 0,1 seconds = 100 ms. <b>Set time in ms.</b> This time is ignored by travels.	0	1000	100	S	0603	BRA_EL_T
Time after which the brake shall be kept with only holding DC-voltage; could be economy resistor or split solenoid. 0,5 .. 5,0 s. Normal is 1,5 second=1500 ms. <b>Set time in ms.</b>	500	5000	1500	D	0604	BRA_DC_T
Time at stop for which the setting of the brake is delayed. During this time the motion is softly electrically braked to damp out sway in load. Braking current is set with 11.28, 100% gives about 30% nominal motor torque as braking torque. <b>Set time in ms.</b> This time is ignored by hoists.	0	10000	0	X	0606	BRA_DELA
Kick in up-direction as percent of the synchronous speed during Electrical braking time (parameter 06.03).	0	100	0	X	0607	ZERO_OFF
Time lag for safety setting of brake based on the speed reference independent of the actual speed measurement. <b>Time in ms.</b>	0	32000	1000	X	0608	BR_REF_T
Set 1 to activate the early warning brake closing supervision (for not shared motion drives only).	0	1	0	D	0609	EARLY_WG

Description	Unit	IDENTITY	English text
Latching of signal 06.55. Zero speed and master switch in neutral position are not needed.	Bool	0654	DBLCK
Logical conditions, like no faults, zero speed detected and master switch in neutral position, to start to control the motion are present.	Bool	0655	DBLCK_C
We have three accepted phases connected.	Bool	0656	LINE_OK
Regulators opened, voltage on motor, brake lifted as we intend to run.	Bool	0657	RELEASE
OK to start to run in direction A; no stop limit switch hit, direction signal exists and there is no mechanical overload in this direction.	Bool	0658	RUN_A
OK to start to run in direction B; no stop limit switch hit, direction signal exists and (there is no mechanical overload in this direction).	Bool	0659	RUN_B



Description	MIN	MAX	NORM	SET	IDENTITY	English text
<p><b>10:</b> Rotor voltage frequency. <b>13:</b> Rotor voltage frequency compared with the speed reference. <b>20:</b> Analogue tachometer. <b>21:</b> Feedback Analogue tachometer and compared with the Rotor voltage. <b>23:</b> Feedback Analogue tachometer and compared with the speed reference. <b>30:</b> Pulse transmitter. <b>31:</b> Feedback Pulse transmitter and compared with the Rotor voltage. <b>32:</b> Feedback Pulse transmitter, and compared with an analogue tachometer. <b>33:</b> Feedback Pulse transmitter, and compared with the speed reference.</p> <p>If value = 10 or 13, it could be needed to set parameter <b>17.27</b>, MAGN_DEL larger than 0.</p> <p>Pulses per revolution of motor shaft turn is equal <math>M * N / P</math>. This parameter is M.</p>	10	33	13	D	0701	SPEED_FB
<p>Pulse per revolution of motor shaft turn is equal <math>M * N / P</math>. This is N. Normal 1.</p>	1	16384	1024	D	0702	NO_PULSE
<p>Pulse per revolution of motor shaft turn is equal <math>M * N / P</math>. This is N. Normal 1.</p>	1	100	1	D	0703	N_X_PULS
<p>Pulse per revolution of motor shaft turn is equal <math>M * N / P</math>. This is P. Normal 1.</p>	1	100	1	D	0704	P_X_PULS
<p>Insert jumpers for range 10V, 50V or 100V. For pulling through loads allow 20% margin for the tachometer.</p> <p>The range can be extended to 200 V by an external serial resistor = 300 kiloOhm.</p> <p>Range adjustment factors:</p> <ul style="list-style-type: none"> <li>10 V = 1,000.</li> <li>50 V = 0,856.</li> <li>100 V = 0,931.</li> </ul> <p>Example: Tacho-voltage at synchronous speed = 60 V. Select range 100 V. Parameter 07.05 is set to value: <math>0,931 * (60 \text{ V} / 100 \text{ V}) * 100\% = 55,9\%</math>.</p>	1	100	100	D	0705	TAC_ADpc
<p>A switch to connect the filter time of 07.20 also for the closed loop control, typically in case non-performing mechanical drive system.</p>	0	1	0	S	0719	USE_FACT
<p>Filter time for speed feedback for presentation. Also connected in the closed control loop if parameter <b>07.19</b> is set to 1.</p>	0	1000	200	S	0720	NACTTC

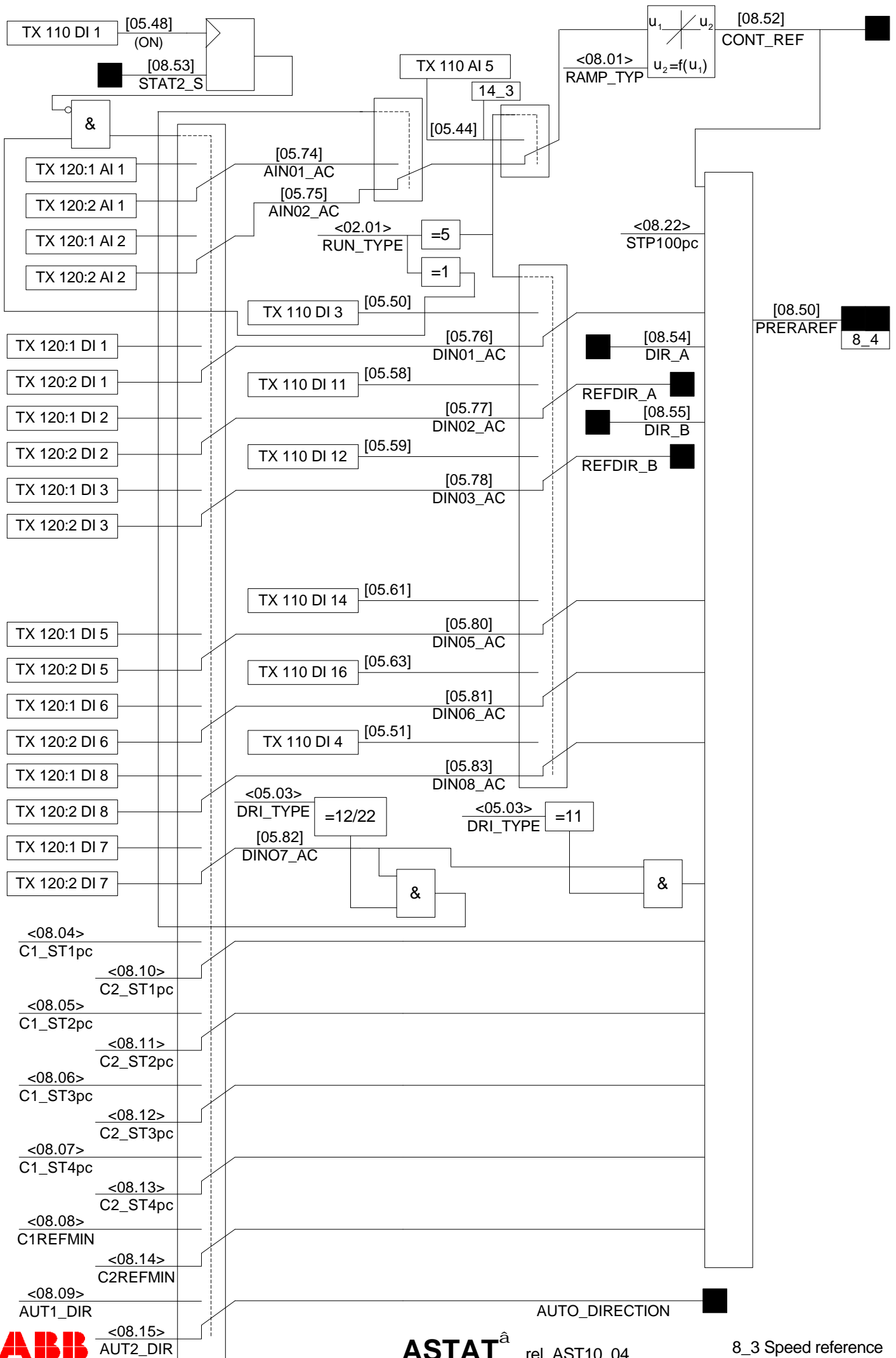
Description	Unit	IDENTITY	English text
Actual motor speed in % of synchronous speed. Measured value before filtering.	%	0750	NACT
Actual motor speed in % of synchronous speed, filtered value.	%	0751	NACTMV
The deviation between Actual speed and Reference speed in % of the synchronous speed.	%	0752	SPMEASER



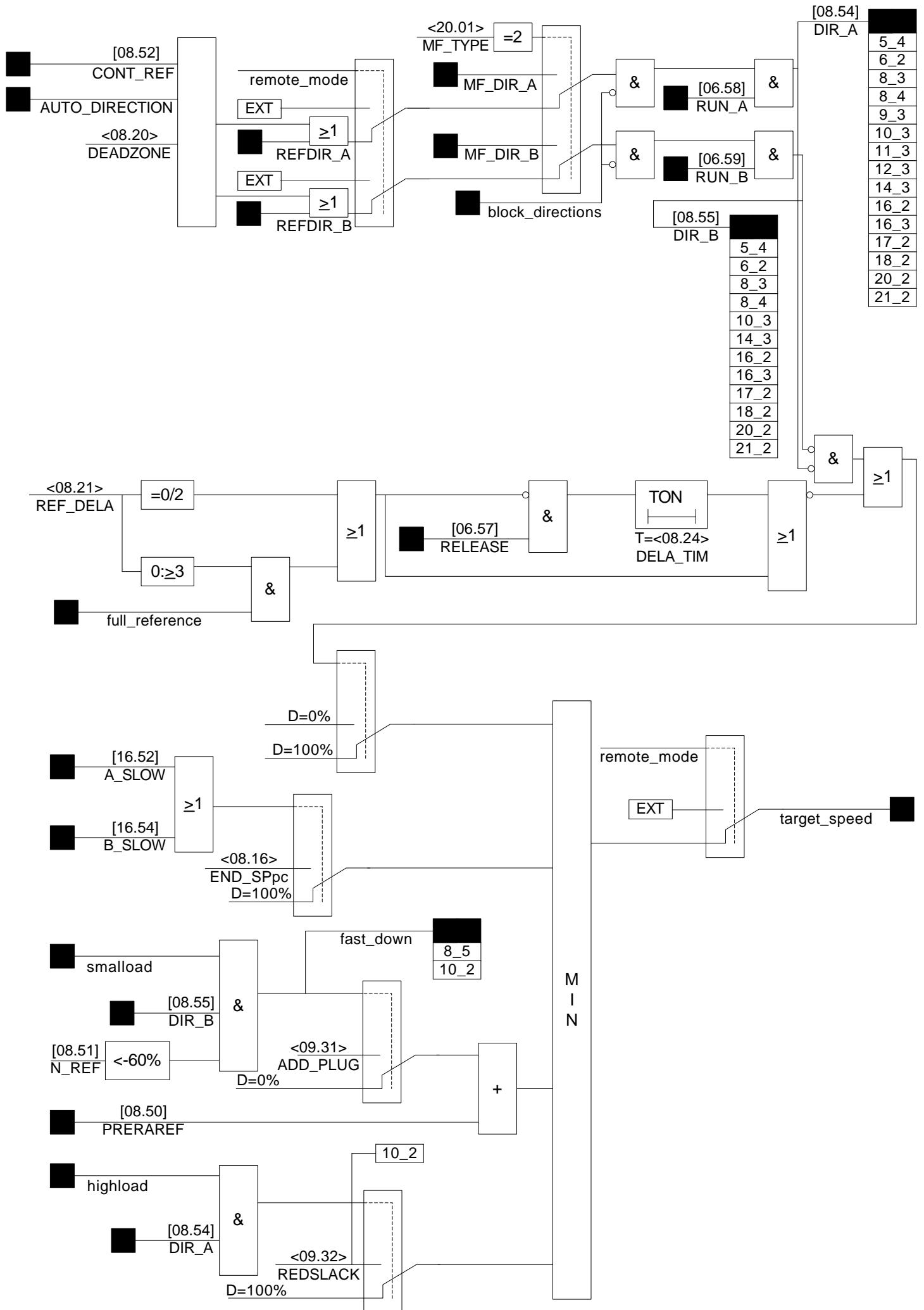
Description	MIN	MAX	NORM	SET	IDENTITY	English text
The analogue reference input as well as the input from the PC-based Tool (but not from step control) is shaped by a function generator prior to the ramp generator. Selection between 1: $u_2 = u_1$ , 2: $u_2 = \text{SIGN}(u_1) * u_1^2$ , 3: $u_2 = \text{SIGN}(u_1) * \text{MAX}( u_1 ; \text{REFMIN})$ , 4: $u_2 = \text{SIGN}(u_1) * \text{MAX}(u_1^2; \text{REFMIN})$ or 5: $u_2 = 0$ (zero)	1	5	5	D	0801	RAMP_TYP
0 will give acceleration on Torque limit. Set time in ms.	0	32000	3000	S	0802	ACC_TIME
0 will give deceleration on Torque limit. Set time in ms.	0	32000	2000	S	0803	RET_TIME
% reference of step 1 for first station. Set to 0 then analogue reference is given, else the step 1 percentage will be added to the analogue reference	0	100	10	D	0804	C1_ST1pc
% reference of step 2 for first station.	0	100	25	D	0805	C1_ST2pc
% reference of step 3 for first station.	0	100	50	D	0806	C1_ST3pc
% reference of step 4 for first station. NB! There is a DI STEP100%, fixed to 100%.	0	100	50	D	0807	C1_ST4pc
Minimum allowed reference for first station.	0	100	0	D	0808	C1REFMIN
Analogue reference inputs will not need the direction signals A and B or the Zero Position signals to become effective.	0	1	0	D	0809	AUT1_DIR
% reference of step 1 for second station. Set to 0 then analogue reference is given, else the step 1 percentage will be added to the analogue reference	0	100	10	D	0810	C2_ST1pc
% reference of step 2 for second station.	0	100	25	D	0811	C2_ST2pc
% reference of step 3 for second station.	0	100	50	D	0812	C2_ST3pc
% reference of step 4 for second station. NB! There is a fixed DI STEP100%.	0	100	50	D	0813	C2_ST4pc
Minimum allowed reference for second station.	0	100	0	D	0814	C2REFMIN
(for second operation station), analogue reference inputs will not need the direction signals A and B or the Zero Position signals to become effective.	0	1	0	D	0815	AUT2_DIR
The slow speed from PRELIM switch to final limit switch. As a percentage of the synchronous speed. Set between value of parameter <b>06.01</b> ZER_SPpc and 50%. Normal 10%	0	50	10	D	0816	END_SPpc
If by any reason the full position of the master switch should give another value than full speed, this parameter should be used. Example: Setting 75 will limit the max. speed to 75% of the synchronous for both step and potentiometer master switch. If the step master switch has the steps 12%, 30% and 60% beside full position, the speeds will be 9%, 22,5%, 45% and 75% for the four notches given a setting 75% of this parameter. Should in most cases be set to the normal value 100.	0	100	100	S	0817	NREF_RED
Percent movement of analogue master switch around zero then it is considered to not have been intentionally moved.	0	200	2,0	X	0820	DEADZONE
Reference can be zero until the brake is assumed to has started its opening. 0 = No action of function 1 = Keeps zero reference until time 08.24 is elapsed 3 = Keeps zero reference until brake indicates OPEN, however never longer than time 08.24	0	3	0	D	0821	REF_DELA

Description	MIN	MAX	NORM	SET	IDENTITY	English text
Speed reference for fastest notch of controller. Use <b>normal setting 100%</b> , which will result in as fast as possible.	0	200	100	X	0822	STP100pc
Time, corresponding to opening time of the brake, then the speed reference is kept at zero. See parameter 0821.	0	1500	150	S	0824	DELA_TIM
Used in manual operation of travel motions: If the driver pulls the lever to the opposite side than the actual motion, the retardation ramp time is reduced by the percent value given with parameter <b>08.27</b>	0	100	0	S	0827	REV_RAMP

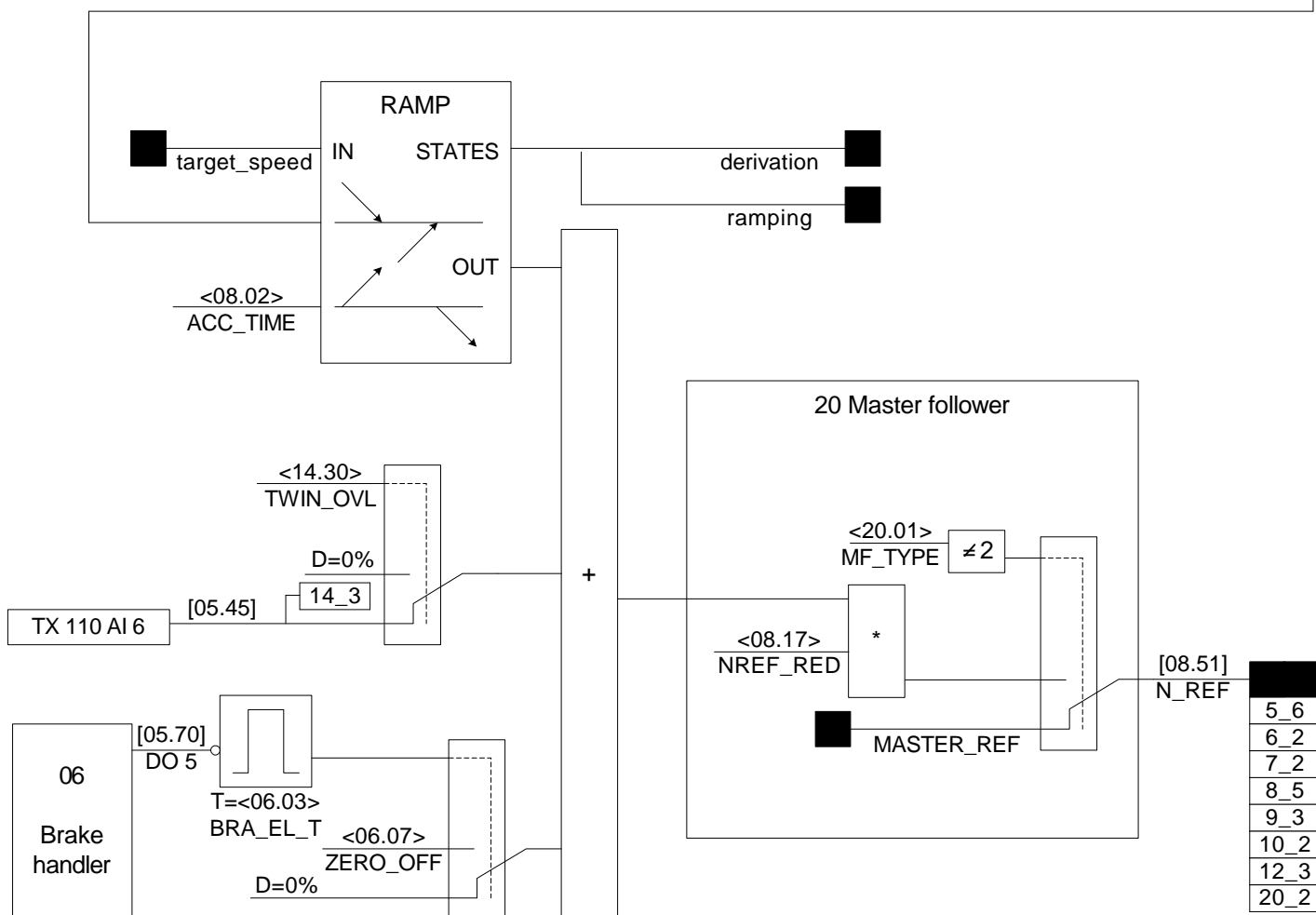
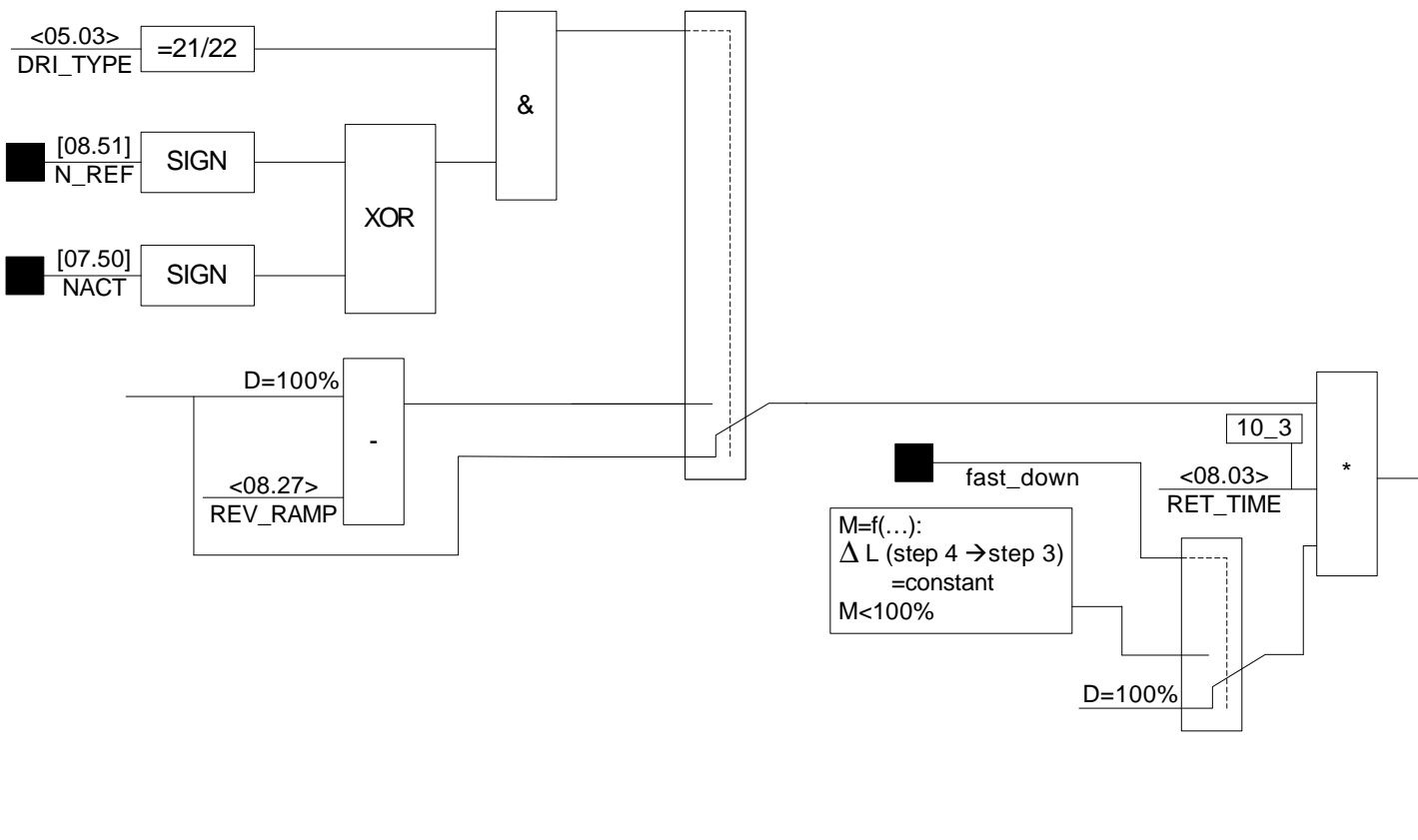
Description	Unit	IDENTITY	English text
Speed reference from the selected step control master switch, before the ramp function.	%	0850	PRERAREF
Speed reference from whichever origin as Master Switch, Computer or Master-Follower, after the ramp function.	%	0851	N_REF
Continuous speed reference measured after the reference value former set by the parameter RAMP_TYP, <b>08.01</b> .	%	0852	CONT_REF
Operation station no. 2 selected	Bool	0853	STAT2_S
(mainly) master switch in direction A	Bool	0854	DIR_A
(mainly) master switch in direction B	Bool	0855	DIR_B







[08.52]	CONT_REF
[08.20]	DEADZONE
[08.51]	N_REF
[08.50]	PRERAREF
[08.54]	DIR_A
[08.55]	DIR_B
[06.57]	RELEASE
[06.58]	RUN_A
[06.59]	RUN_B
[08.21]	REF_DELA
[08.24]	DELA_TIM
[08.16]	END_SPpc
[09.31]	ADD_PLUG
[09.32]	REDSLACK
[16.52]	A_SLOW
[16.54]	B_SLOW
[8.5]	10_2
[10.2]	10_2
[8.5]	8_5
[10.2]	10_2
[5.4]	5_4
[6.2]	6_2
[8.3]	8_3
[8.4]	8_4
[9.3]	9_3
[10.3]	10_3
[11.3]	11_3
[12.3]	12_3
[14.3]	14_3
[16.2]	16_2
[16.3]	16_3
[17.2]	17_2
[18.2]	18_2
[20.2]	20_2
[21.2]	21_2



5_6
6_2
7_2
8_5
9_3
10_2
12_3
20_2

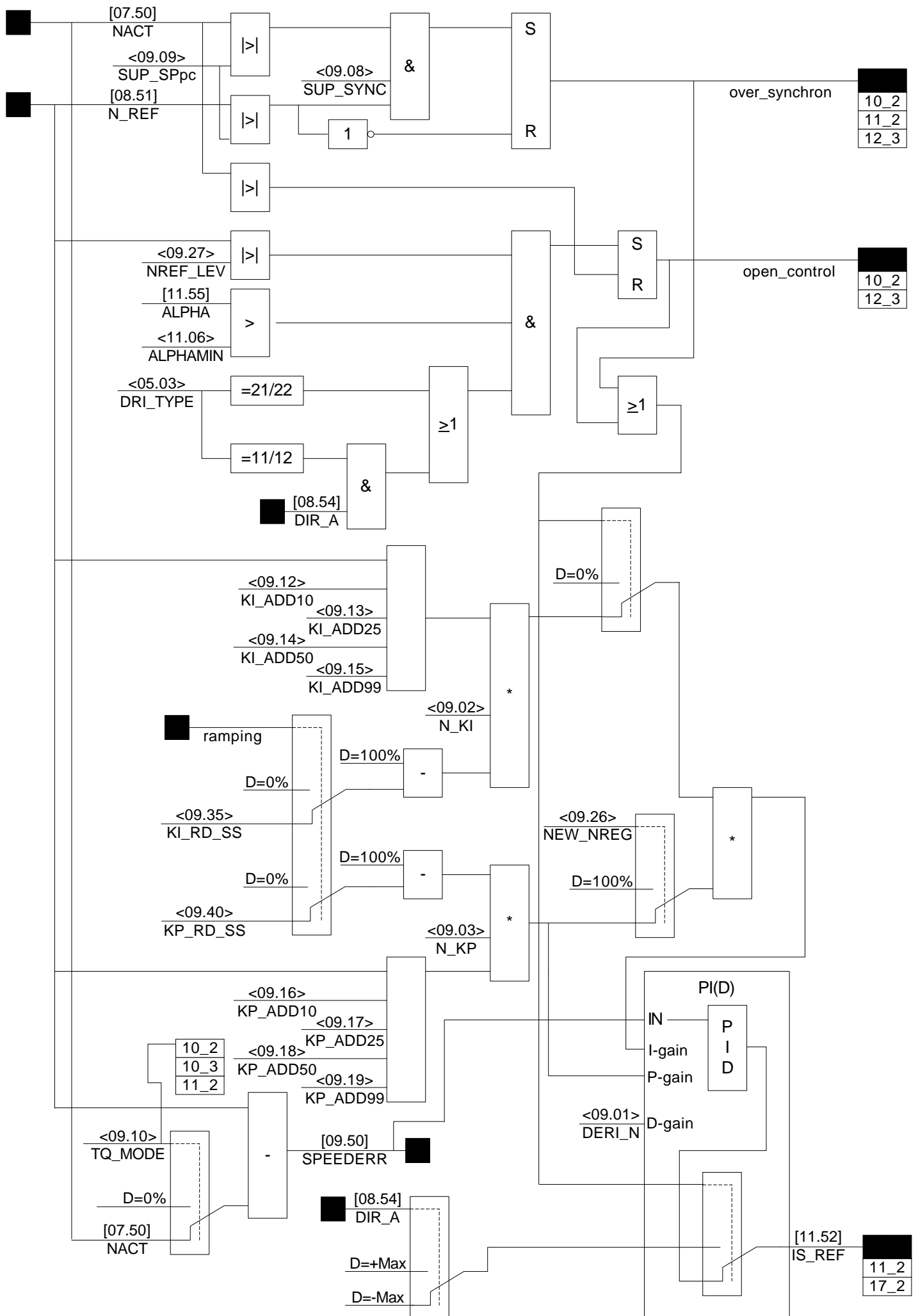
Description	MIN	MAX	NORM	SET	IDENTITY	English text
Derivation part of speed regulator. Higher entered parameter value gives more derivation. Very rarely modified from 0.	0,000	10,000	0,000	X	0901	DER1_N
Integration part of speed regulator. Higher value gives more integration. Adjustment for hoists is mostly to a higher value.  Note the option to have higher gain during non-stationary speed, parameter 09.35.  Start with 0,050 for a hoist, 0,020 for Travel. For a hoist with super-synchronous lowering, test with full load, so the I-part is not too small.  Many Travels can be tuned to a good result with I-part = 0,000. For Torque control, set 0,000. For travels the value can mostly be 0,000. Bad or complicated mechanical drive gear requires a lower value for travel motions.	0,000	4,000	0,020	S	0902	N_KI
Proportional part of speed regulator. Higher entered parameter value gives higher gain. Adjustment is mostly to a higher value.  Note the option to have higher P-gain during non-stationary speed, parameter 09.40. Set always 1,000 for Torque Control.	0,200	64,000	2,000	S	0903	N_KP
Load droop compensation Time to add 100% of the motors rated torque to the output of the speed regulator. 0 .. 10 seconds. Normal is 0. Set time in ms.	0	10000	0	X	0905	LO_DROOP
The maximal torque limit for all acceleration of Travel motions, and acceleration in hoisting direction of Hoist motions (parameter 09.06) and braking torque limit for Travel motions (parameter 09.07) are to be set. These parameters are used for control of the rotor contactors in the Normal automatic mode (12.30 = 0).  Then moving with constant speed, defined as 4,0 seconds have elapsed since the output from the speed reference ramp generator became constant, following torque limits are used to control the rotor contactors: Travel motoring: 50 % of the motors rated torque Travel braking: 50 % of the motors rated torque. Only with wind in the back or downhill rails. Hoist hoisting: 100 % of the motors rated torque Hoist lowering: 85 % of the motors rated torque Hoist with acceleration in lowering direction: 85 % of the motors rated torque. Coming to the situation that ASTAT cannot produce the needed torque it will select the resistor step that can produce the highest torque. Consult the mechanical designer to set the torque limits. The normal values are however a good choice in most situations. For rotor contactor control in speed mode (parameter 12.30 = 1), 09.06 and 09.07 have no influence. For torque control with DARA 1001 the parameters 09.06 and 09.07 will in addition limit the motor's torque in positive and negative direction.	50	200	125	D	0906	LIMPTOpc
	50	200	125	D	0907	LIMNTOpc

Description	MIN	MAX	NORM	SET	IDENTITY	English text
Switching to super-synchronous braking is made in lowering mode. <b>0:</b> is not effective. <b>1:</b> is effective only in direction B (lowering for hoists). <b>2:</b> is effective only in direction A. <b>3:</b> is effective in both directions.	0	3	0	D	0908	SUP_SYNC
Value in percent of the motors synchronous speed for switching to super-synchronous braking.	50	100	85	D	0909	SUP_SPpc
The regulation will be torque, not speed control. The torque reference is coming from master switch, AI or computer. Gain is set with parameters <b>11.15</b> and <b>11.16</b> . If DARA 1000 or DARA 1010 is used, parameter <b>05.02</b> , this parameter <b>09.10</b> has no influence.	0	1	0	D	0910	TQ_MODE
Increased action of the Speed controller Integral part at 10% speed and below. The value entered is relative to <b>09.02</b> . It can be dangerous to use this parameter to reduce the Integral gain at low speed.	-100	400	0	X	0912	KI_ADD10
Increased action of the Speed controller Integral part at 25% speed reference The value entered is relative to <b>09.02</b> .	-100	400	0	X	0913	KI_ADD25
Increased action of the Speed controller Integral part at 50% speed reference. The value entered is relative to <b>09.02</b> .	-100	400	0	X	0914	KI_ADD50
Increased action of the Speed controller Integral part at full speed reference. The value entered is relative to <b>09.02</b> .	-100	400	0	X	0915	KI_ADD99

Description	MIN	MAX	NORM	SET	IDENTITY	English text
Increased action of the Speed controller Proportional part at 10% speed and below. The value entered is relative to <b>09.03</b> .	-100	400	50	S	0916	KP_ADD10
Increased action of the Speed controller Proportional part at 25% speed reference. The value entered is relative to <b>09.03</b> .	-100	400	25	S	0917	KP_ADD25
Increased action of the Speed controller Proportional part at 50% speed reference. The value entered is relative to <b>09.03</b> .	-100	400	10	S	0918	KP_ADD50
Increased action of the Speed controller Proportional part at full speed reference. The value entered is relative to <b>09.03</b> .	-100	400	0	S	0919	KP_ADD99
Then Torque control is used in stead of speed control, the AI torque reference can be scaled with parameter <b>09.10</b> . 100 % corresponds to +10 V = +100%, 400 % corresponds to +10 V = +400%.	100	400	100	D	0924	TQRNR_SC
Set to <b>1</b> to get independent tuning of the speed regulators P- and I-parts. Setting 1 is recommended.	0	1	0	D	0926	NEW_NREG
Above this reference the optimisation function for full speed can be active, and in principle the motor is DOL. Do not set lower than 85% for rotor feedback. If set to at least 101%, the speed control is always active. Set to 200% for Electrical shaft and similar applications.	0	200	85	X	0927	NREF_LEV
High reference to ramp generator will be to a value of (100%+ 09.31) when weight is less than 14.04 AND direction of motion is down AND speed reference is down AND value of speed reference larger than 50% AND super-synchronous lowering is not active during a lowering.	0	70	55	D	0931	ADD_PLUG
<b>See Load functions</b> The reference to the ramp generator will be limited to a value of (100%-09.32) when Weight less than 14.25 unless FREE_HOK is true. The Speed limitation is made before the ramp function AND only in positive direction reference AND FREE_HOK = 0	0	100	65	D	0932	REDSLACK
<b>See Load functions</b> This parameter is active only when speed feedback is made with rotor voltage frequency. For a time, defined as 09.34 ms, after exit from super-synchronous lowering, the current will be forced to 09.33 % of the historical current that was measured for the super-synchronous lowering phase.	0	400	280		0933	REV_CUFA
This time starts when Super Synchronous lowering ends. If there is rotor freq. feedback, during this time 09.34 the speed control is replaced by plug braking with parameter 09.33 x the lowering current in Super Synchronous mode.	0	500	250		0934	CURRTIME
For most motions the behaviour of the drive is better if the Integral gain is higher during speed changing than in steady state. By setting this parameter larger than 0 the Integral gain will be reduced during steady speed compared to during change. Leave as default = 50% for regular applications. For demanding applications start with 09.35 = 80% and tune 09.02 as much as possible. After that, reduce 09.35 as much as possible.	0	100	50	S	0935	KI_RD_SS

Description	MIN	MAX	NORM	SET	IDENTITY	English text
<p>For most motions the behaviour of the drive is better if the Proportional gain is higher during speed changing than in steady state. By setting this parameter larger than 0 the gain will be reduced during steady speed compared to during change.</p> <p>Leave as default = 50% for regular applications. For demanding applications start with 09.40 = 65% and tune 09.03 as much as possible. After that, reduce 09.40 as much as possible.</p>	0	100	50	S	0940	KP_RD_SS

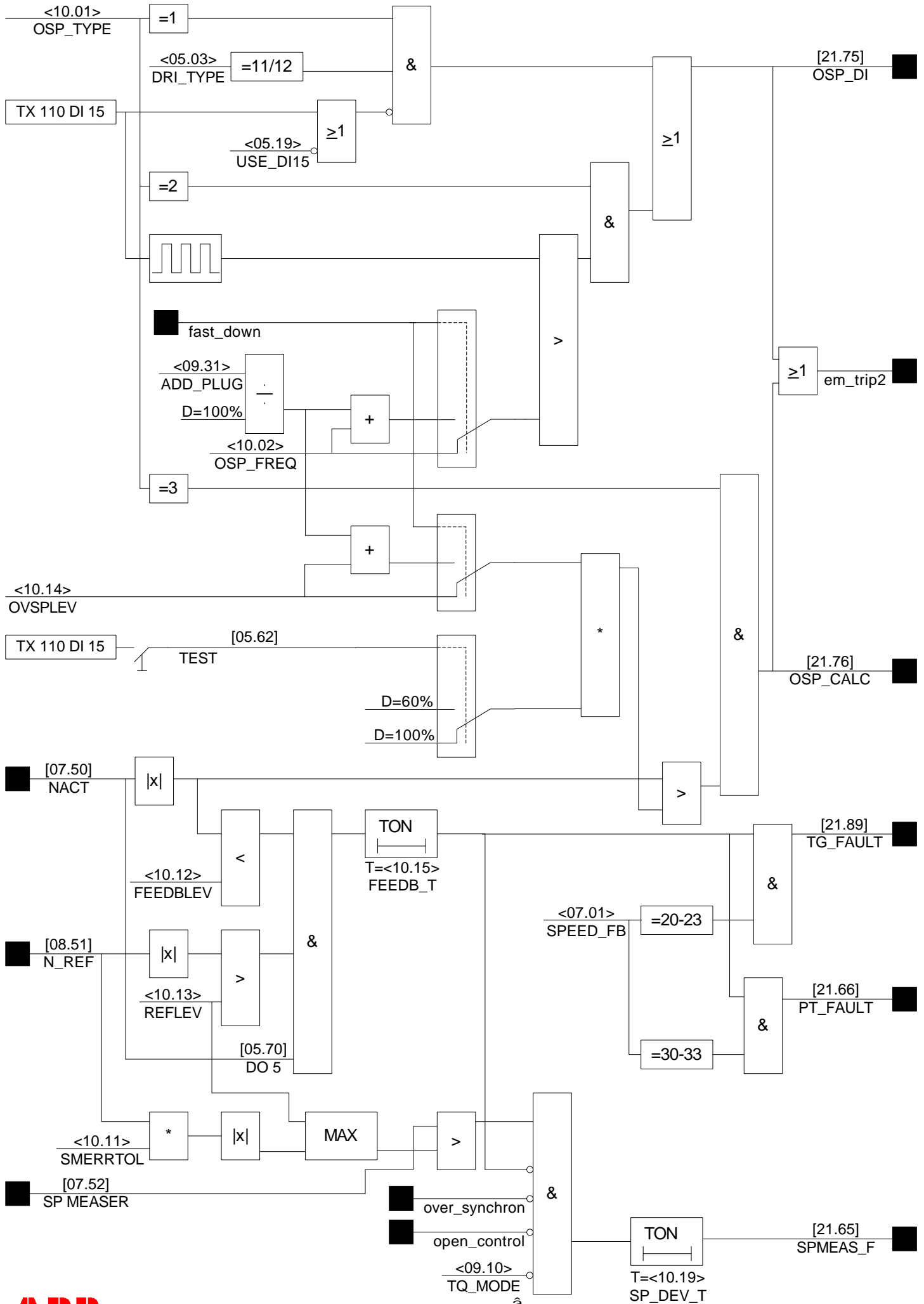
Description	Unit	IDENTITY	English text
Speed error = In-signal to speed regulator	%	0950	SPEEDERR

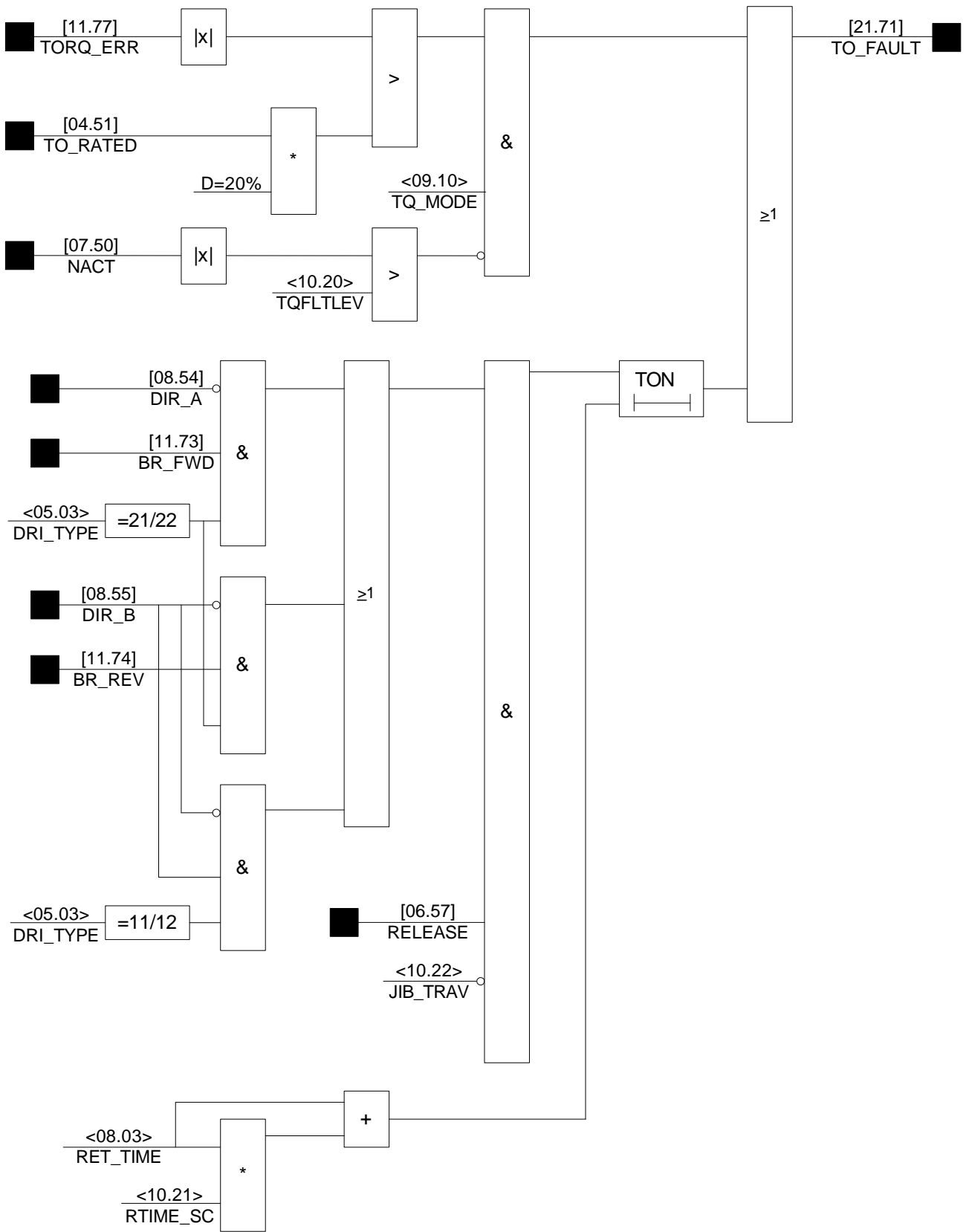


Description	MIN	MAX	NORM	SET	IDENTITY	English text
Overspeed supervision of hoists. 1 .. 3. 1: DI requires high input. 2: Pulse frequency higher than allowed on DI. 3: Speed measurement based; trips at 125%CTR of the synchronous speed.	1	3	1	D	1001	OSP_TYPE
Overspeed pulse frequency on DI. 1 .. 75 <sup>CTR</sup> . Normal 1. Unit: Hz.	1	75	1	D	1002	OSP_FREQ
Allowed error in speed as percent of the reference in speed controlled mode. If the speed reference is low, a speed error of parameter 10.13 percent is allowed. Trip is delayed by time 10.19. Fault code is 65. Open control (= full speed hoisting or travelling) and Super-synchronous braking (= full speed lowering) are not speed controlled modes.	0	100	30	X	1011	SMERRTOL
The level that defines that there is some life at all in the tachometer. The minimum of this level is determined by discrimination of noise as an active tachometer input.	0	200	0,5	X	1012	FEEDBLEV
At this level, set a slightly less than Step 1, a feedback is requested from tachometer or encoder. Any feedback is defined by a speed feedback value larger than 10.12, typically 0,5% of full speed. Trip is delayed by time 10.15. Fault codes are 89 or 66. The Fault indications 89 and 66 has higher priority than Fault 65. Rotor feedback is checked in another way, and gives Fault code 37.	0	200	8	X	1013	REFLEV
If parameter 10.01 = 3, the motion will trip at absolute measured speed level. This level is set with 10.14. Self adjusting to a higher value in case of High Speed Down - function is used. Do not adjust 10.14 of this reason.	0	200	125	X	1014	OVSPLEV
Time that no feedback at all is accepted. If this trip comes at start the most common reason is a slow lifting brake. Use the function to delay the reference until the brake has lifted, see <b>Section 4.8 Speed reference</b> , before that parameter <b>10.15</b> is set longer. Brakes will degenerate by age and be slower in action, so the delayed reference shall have some margin when starting up a new crane.	0	1500	500	S	1015	FEEDB_T
Time that a speed deviation of 10.11 % of speed reference is accepted. Can be carefully increased if Speed deviation Fault is generated although the drive system is without any error	0	2500	1000	S	1019	SP_DEV_T
Difference in percent between actual value and reference in torque control when the torque controlled is considered to have failed.	0	200	0	X	1020	TQFLTLEV
Margin as % of the set retardation time added to the set retardation time, in which the motion is allowed to reverse-current ("plug") brake.	0	200	100	D	1021	RTIME_SC
Set 1 to turn off the Thyristor bridge supervision for motions that needs long time reverse-current braking. The supervision is not active lowering with a hoist (no need to set to 1!)	0	1	0	D	1022	JIB_TRAV

Description	Unit	IDENTITY	English text

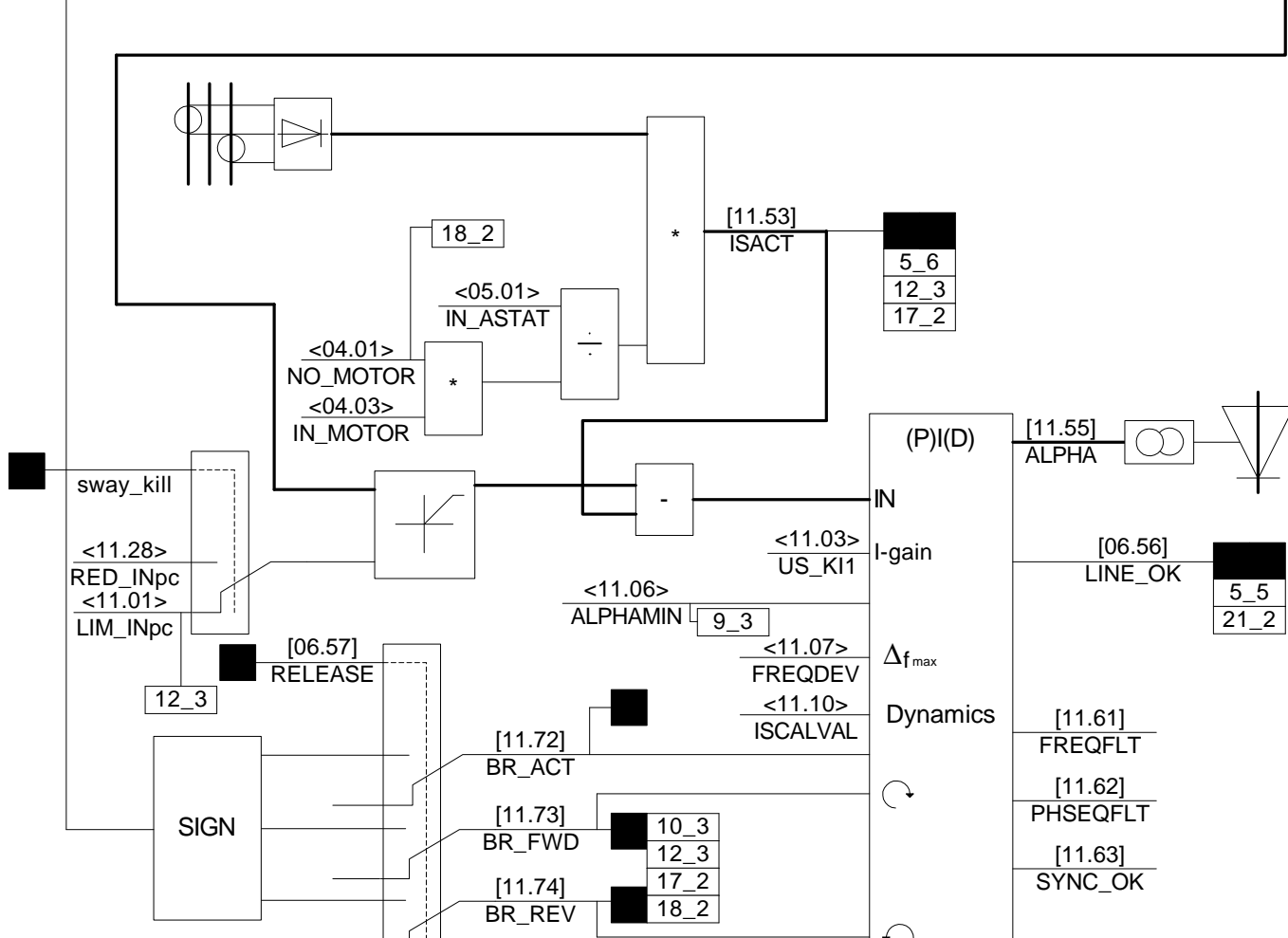
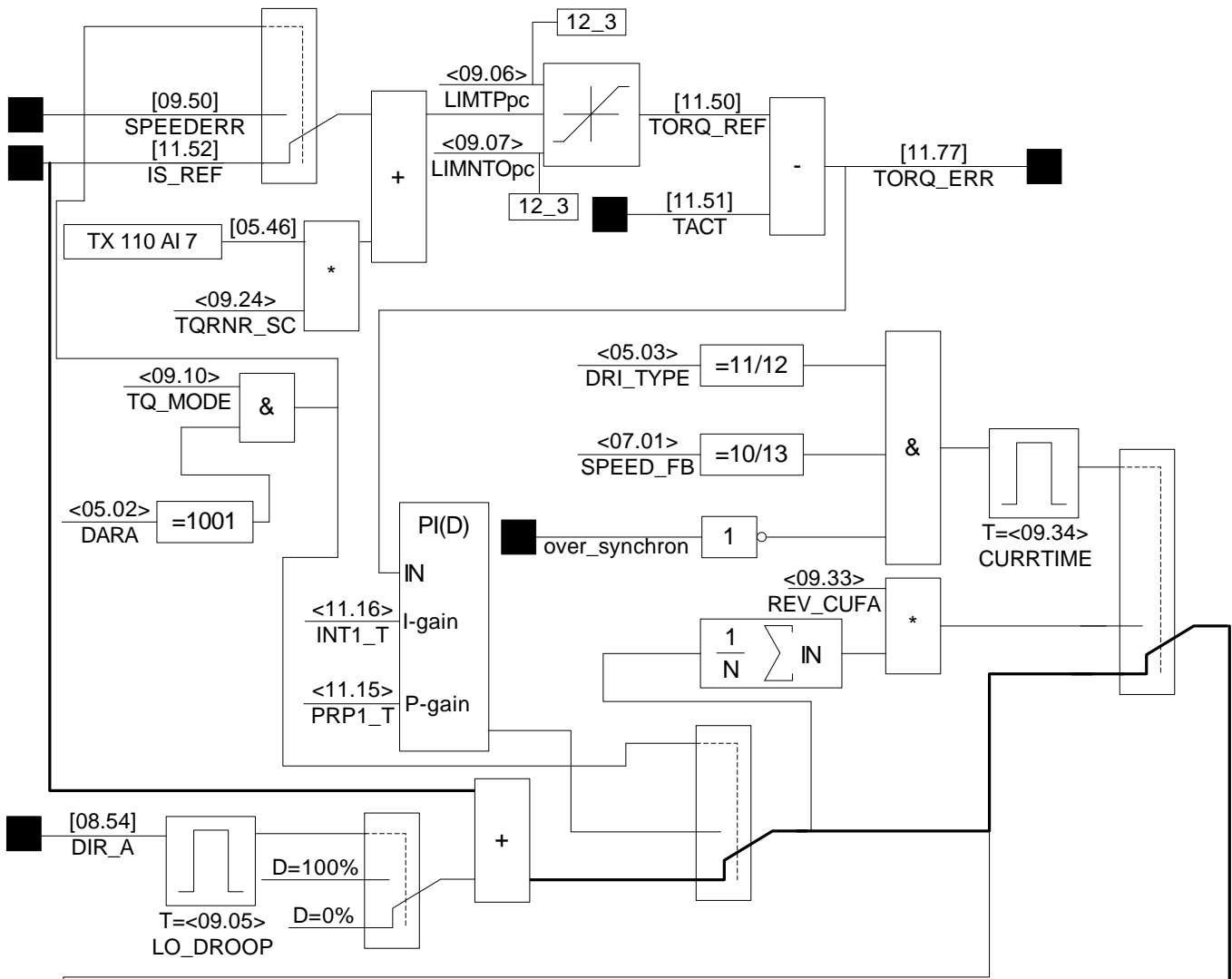






Description	MIN	MAX	NORM	SET	IDENTITY	English text
Current limit in % of rated current of the motor	100	400	400	D	1101	LIM_INpc
Gain of current regulator. The current regulator is working with only integral gain. The value can be modified after careful testing. Travel motions can be better with reduced value of this parameter and higher speed regulator gain.	0,100	32,000	10,000	S	1103	US_KI1
The value 20 degree corresponds to that the firing pulses are allowed to start so early in the electrical period, that the motor gets full line voltage. This parameter shall only be changed for test purpose.	20	360	20	X	1106	ALPHAMIN
No reason to change from 9 Hertz except for test purpose	0	9	9	X	1107	FREQDEV
Controls the systems dynamics. Typical setting in some situations: Good mechanics+tachometer allows 1,00 Average mechanics+tachometer or good mechanics+rotor feedback allows 1,15 Average/bad mechanics+rotor feedback or Bad mechanics+tachometer allows 1,30	0,300	2,560	1,150	X	1110	ISCALVAL
Proportional gain of Torque regulator. Only applicable for DARA 1001 with torque control, i. e. parameter <b>09.10</b> = 1	0,000	4,000	0,025	X	1115	PRP1_T
Integral gain of Torque regulator. Only applicable for DARA 1001 with torque control, i. e. parameter <b>09.10</b> = 1	0,000	128,000	0,500	X	1116	INT1_T
Current limit for elimination of sway of travel motions by electrical braking this this current during the time defined by parameter 06.06.	100	400	D	D	1128	RED_INpc
Rotor contactor K1 does not pull unless the line current reaches this level, K2 does not pull unless the current reaches this level + 10%, K3 does not pull unless the current reaches this level + 20%. Only active in the Normal rotor contactor mode.	0%	400%	50%	X	1136	IS_NO_LO
If a slow breaking rotor contactor is used, ASTAT can still perform the breaking with no current. The selection of a slow contactor will give a longer time to change torque direction. Try to use the contactors listed in the Manual, chapter 4.12!	0	250	20	D	1139	CON_OP_T

Description	Unit	IDENTITY	English text
Torque reference (Analog output No. 2)	%	1150	TORQ_REF
Actual motor torque in % of rated torque	%	1151	TACT
Current reference in % rated current of the connected motors.	%	1152	IS_REF
Actual stator current in % of motor rated current of the connected motors. (Analog output No. 1)	%	1153	ISACT
Thyristor phase (firing) angle	Degree	1155	ALPHA
Actual motor voltage measured on ASTAT motor connection terminals	V	1157	VMOT_AV
Frequency measurement fault. 1: Fault	Bool	1161	FREQFLT
Phase sequence fault; 1: Fault	Bool	1162	PHSEQFLT
Synchronisation with line voltage; 1: synch. OK, 0: synch. failed.	Bool	1163	SYNC_OK
One of the thyristor bridges is active. 1: active, 0: not active	Bool	1172	BR_ACT
Active thyristor bridge for motoring in direction A. 1: active, 0: not active	Bool	1173	BR_FWD
Active thyristor bridge for motoring in direction B. 1: active, 0: not active	Bool	1174	BR_REV
Torque error = In-signal to torque regulator	%	1177	TORQ_ERR

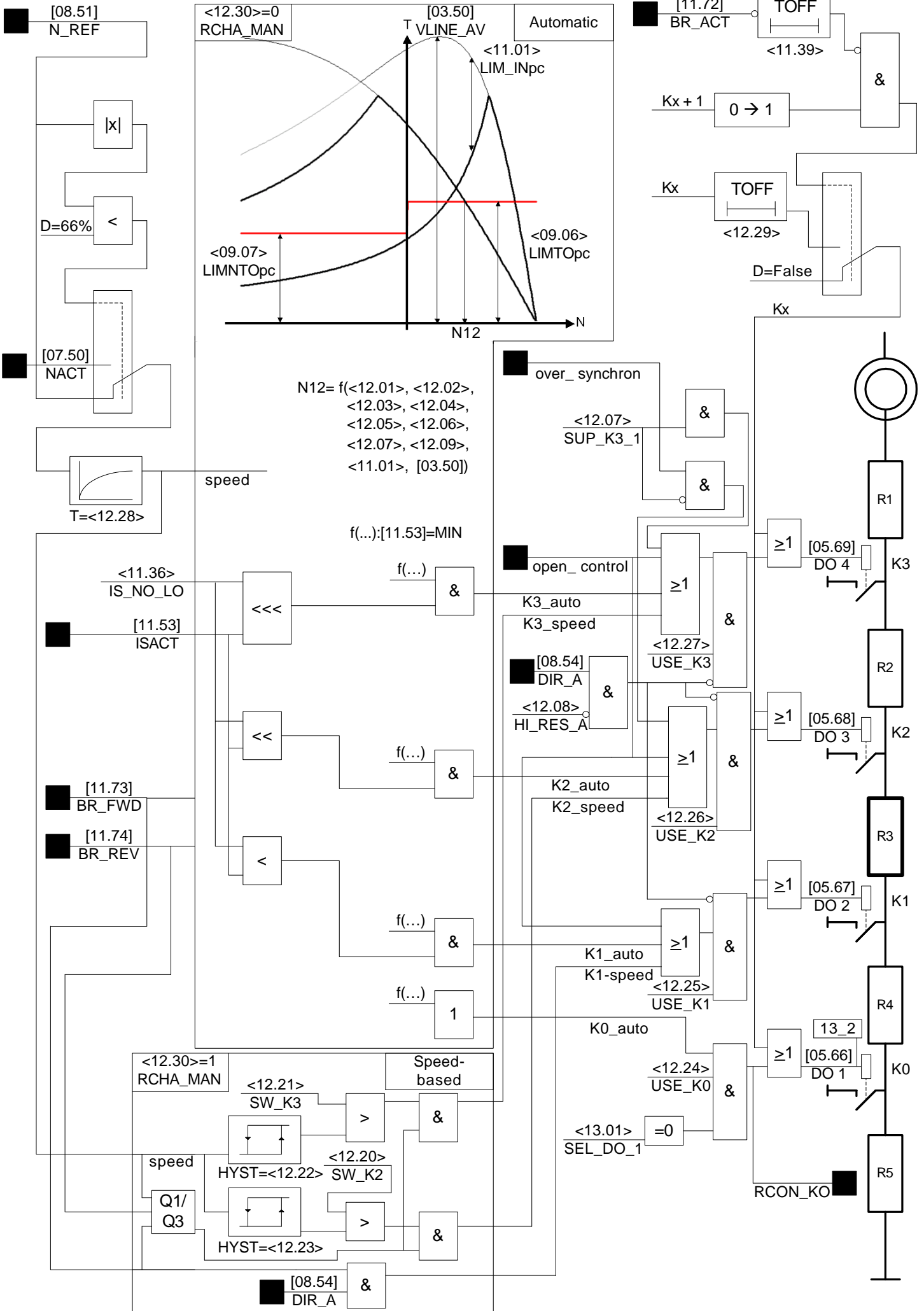


Description	MIN	MAX	NORM	SET	IDENTITY	English text
<p>Rotor resistance R1 as percent of the motors unity resistance.</p> <p>Give accumulated values including internal motor resistance and cable.</p> <p>Enter 0 when the step is not used.</p> <p>About 8% for three contactor control, set to 0% for two contactors. With about 8% slip including motor K3 is closing at about a speed &gt;70% in the Hoisting direction (Dir. A). Closing at super synchronous braking only if the parameter 12.07 is set to 1</p>	0	100	0	D	1201	RES_1_pc
<p>Rotor resistance R2 as percent of the motors unity resistance.</p> <p>Give accumulated values including internal motor resistance, cable and lower resistor steps.</p> <p>Enter 0 when the step is not used.</p> <p>About 18% for three contactor control (K2 closing at about a speed &gt;33%), 12% for two contactors(K2 closing at about a speed 50%).Also closing at super synchronous braking</p>	0	100	12	D	1202	RES_2_pc
<p>Rotor resistance R3 as percent of the motors unity resistance.</p> <p>Give accumulated values including internal motor resistance, cable and lower resistor steps</p> <p>With about 35% .. 40% slip totally. This resistor step must always be given a value larger than 0%!</p>	0	100	40	D	1203	RES_3_pc
<p>Rotor resistance R4 as percent of the motors unity resistance.</p> <p>Give accumulated values including internal motor resistance, cable and lower resistor steps.</p> <p>Enter 0 when the step is not used.</p> <p>A normal value is about 60% .. 68% slip totally with K1 open. K1 is mostly closed in the Hoisting direction (Dir. A). In case of the general conditions are fulfilled, and the parameter 12.08 = 1, the contactor will open also in hoisting.</p>	0	100	65	D	1204	RES_4_pc
<p>Rotor resistance R5 as percent of the motors unity resistance.</p> <p>Give accumulated values including internal motor resistance, cable and lower resistor steps.</p> <p>Enter 0 when the step is not used.</p> <p>Typical value is 100% slip totally with K0 open. It is closed in Direction B if speed &gt; -60% (It is not written  speed  &gt; -60%).</p> <p>Remark: This step is used only then super-synchronous lowering is not desired, as two hoists with electrical shaft.</p>	0	200	0	D	1205	RES_5_pc
<p>Resistor total tolerance in per cent of Nominal resistance.</p> <p>Parameter is used for the tolerance of the resistor.</p> <p>Example: A resistor has an absolutely lowest value of 0,9 Ohm, and an absolutely highest value of 1,1 Ohm. The value of 12.06 shall be 10 as the resistor value is the nominal +/-10 %.</p>	0	100	10	D	1206	RES_HYpc

Description	MIN	MAX	NORM	SET	IDENTITY	English text
Logical parameter 0..1. Normal 1. If set to 1, K3 will close when the speed is faster than the set speed by parameter 09.09. If set to 0, K2 will close when the speed is faster than set speed by parameter 09.09. Applicable for super-synchronous braking. Set 1 for hoists with super-synchronous braking there the contactor K3 is installed, otherwise 0.	0	1	0	D	1207	SUP_K3_1
12.08 = 1: Resistor step 4 is used in the hoisting at Step 1 at no speed change. Typically used for tilting of ladles in the hot metal industry. Only used for cranes with step master switch, not for analog reference.	0	1	1	D	1208	HI_RES_A
A value in % that is added to the torque ability of the actual rotor resistance and is subtracted from all other possible rotor resistances to prevent too frequent switching of rotor contactor. Only active in Normal mode	0	100	5	D	1209	ANTICLAP
Setting point for operation in speed mode (12.30 = 1) for contactor K2. Set to around 50% with operation with only K2 and no K3. In Normal (12.30=0) the contactors switch for best thermal motor use. In Speed mode (12.30=1) K2 is controlled with the speed level 12.20 (hyst. 12.22) and K3 is controlled with the speed level 12.21 (hyst. 12.23), K1 is always closed in Dir. A.	0%	100%	33%	D(S)	1220	SW_K2
Setting point for operation in speed mode (12.30 = 1) for contactor K3 In Normal (12.30=0) the contactors switch for best thermal motor use. In Speed mode (12.30=1) K2 is controlled with the speed level 12.20 (hyst. 12.22) and K3 is controlled with the speed level 12.21 (hyst. 12.23), K1 is always closed in Dir. A.	0%	100%	70%	D(S)	1221	SW_K3
Hysteresis for contactor K2 in speed mode (12.30 = 1). In Normal (12.30=0) the contactors switch for best thermal motor use. In Speed mode (12.30=1) K2 is controlled with the speed level 12.20 (hyst. 12.22) and K3 is controlled with the speed level 12.21 (hyst. 12.23), K1 is always closed in Dir. A.	0%	10%	4%	D(S)	1222	HIST_K2
Hysteresis for contactor K3 in speed mode (12.30 = 1). In Normal (12.30=0) the contactors switch for best thermal motor use. In Speed mode (12.30=1) K2 is controlled with the speed level 12.20 (hyst. 12.22) and K3 is controlled with the speed level 12.21 (hyst. 12.23), K1 is always closed in Dir. A.	0%	10%	4%	D(S)	1223	HIST_K2
If 0, Rotor contactor K0 will never pull-in	0	1	1	X	1224	USE_K0
If 0, Rotor contactor K1 will never pull-in	0	1	1	X	1225	USE_K1
If 0, Rotor contactor K2 will never pull-in	0	1	1	X	1226	USE_K2
If 0, Rotor contactor K3 will never pull-in	0	1	1	X	1227	USE_K3
Filter time (ms) for actual speed being used for switching point calculations of rotor contactors.	0	32767	200	X	1228	NACT_FIL
If a slow making rotor contactor is used, ASTAT will delay the breaking of "previous" contactor. A slow making contactor gives short periods of torque weakness. Try to use the contactors listed in the Manual, chapter 4.12!	0	32767	80	D	1229	CON_CL_T

Description	MIN	MAX	NORM	SET	IDENTITY	English text
Value 0: Normal automatic dynamic switch point calculation. For 1, Speed based, use the Special View and modify also 12.07 and 12.20-24. In Normal (12.30=0) the contactors switch for best thermal motor use. In Speed mode (12.30=1) K2 is controlled with the speed level 12.20 (hyst. 12.22) and K3 is controlled with the speed level 12.21 (hyst. 12.23), K1 is always closed in Dir. A.		1	0	S	1230	RCHA_MAN

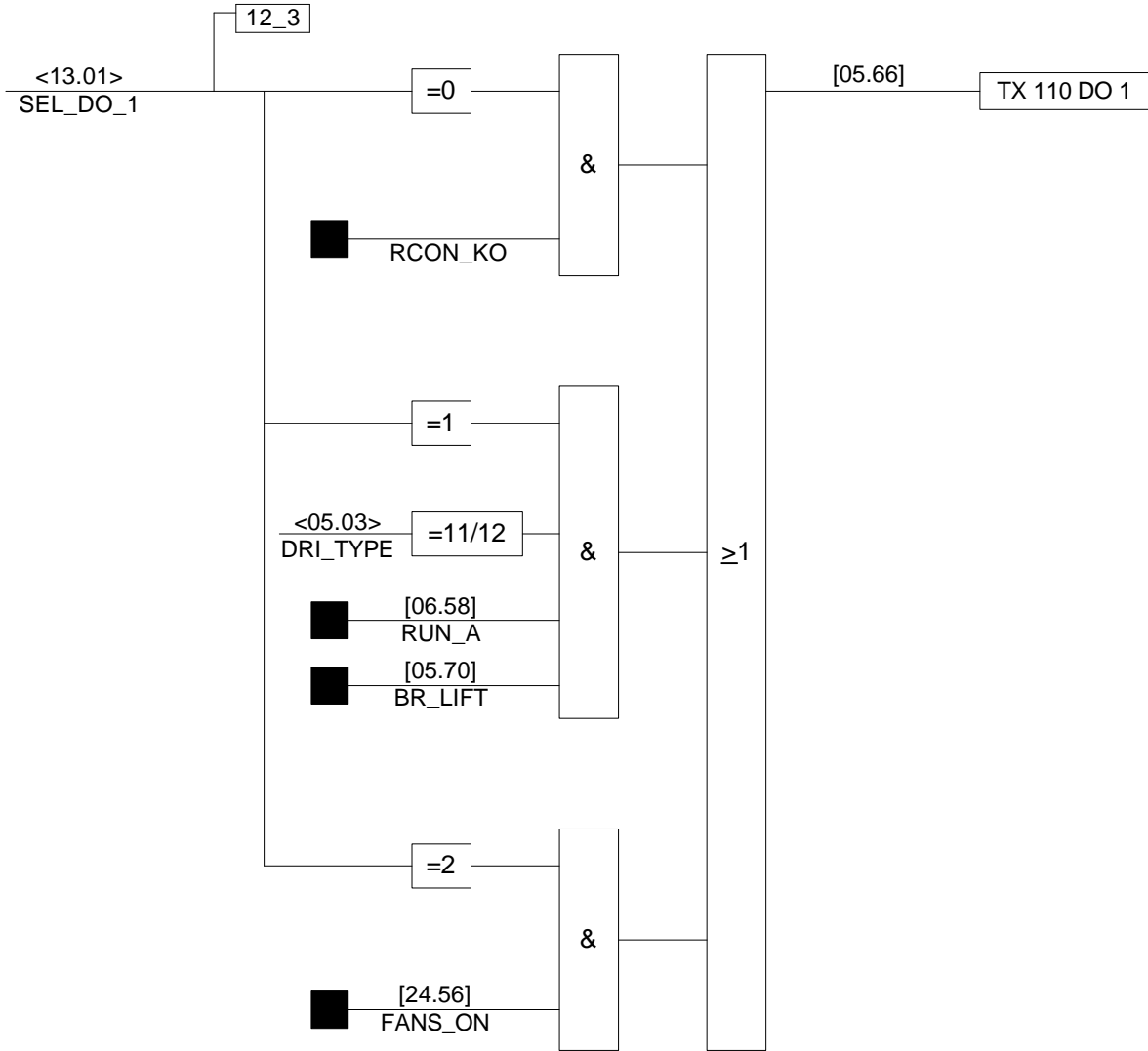
Description	Unit	IDENTITY	English text





Description	MIN	MAX	NORM	SET	IDENTITY	English text
If an extended lowering contactor, K0, a friction type cable reel device or a contactor that control the thyristor fan shall be used. <b>0</b> : Extended lowering contactor. <b>1</b> : Cable reel used. <b>2</b> : Thyristor fan(s) can be temperature controlled.	0	2	2	D	1301	SEL_DO_1

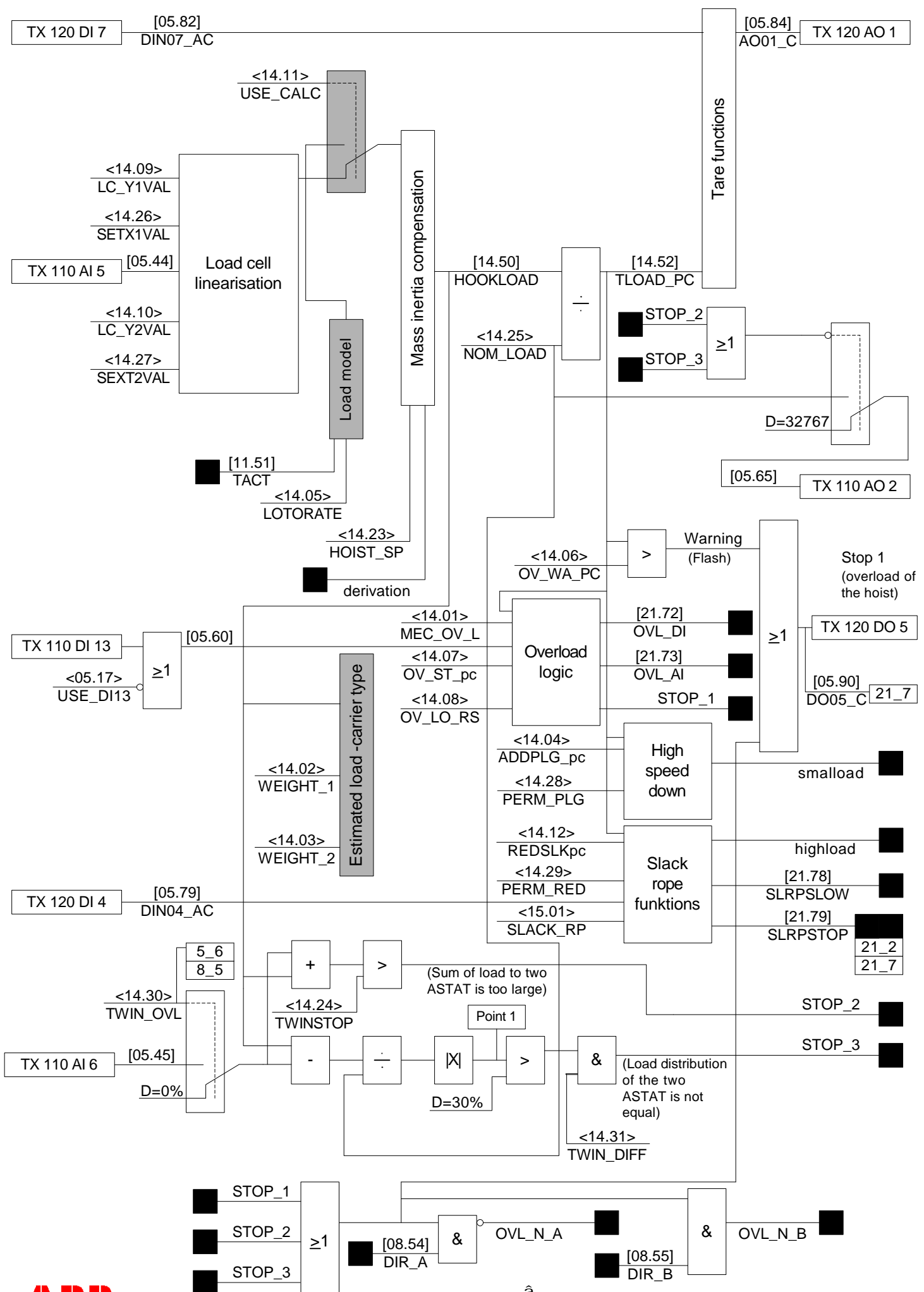
Description	Unit	IDENTITY	English text



Description	MIN	MAX	NORM	SET	IDENTITY	English text
0: not used, 1: DI in Direction A, 2: DI in Direction B, 31: AI in Direction A, 32: AI in Direction B.	0	32	1	D	1401	MEC_OV_L
Not changeable					1402	WEIGHT_1
Not changeable					1403	WEIGHT_2
Load for increased lowering speed in % of 14.25% (Speed will not be faster than synchronous if Weight larger than 14.04)	0	70	0	D	1404	ADDPLG_pc
Warning level in % of: the hoists nominally given load.	0	150	80	D	1406	OV_WA_pc
Stop level in % of: the hoists nominally given load.	50	150	110	D	1407	OV_ST_pc
Logical parameter 0 or 1. 1: restart with the Master switch in zero-position is required after detection of mechanical overload. Used for compatibility of older ASTAT As earlier ASTAT did not have any requirement for restart after Mechanical overload stop, also this new ASTAT can be configured in the same way, although it is not recommended for new installations.	0	1	1	D	1408	OV_LO_RS
The load between 0 and 32767 Weight units related to AI signal=x1v V or x1c mA. Parameter to enter 0 .. 32767. Same unit must be used for parameters 14.09, 14.10, 14.24, 14.25. 20 mA or 10 V from load cell must not generate more than 32767 units in ASTAT. Example: A 200 t hoist with 1/16 of the load by a load cell which gives 10 V=20 t. Say that 10 V=16 x 20=320 t weight= 320000 kg. As 320000>32767 we let 1 WEIGHT UNIT be 10 kg. If the load cell had given 10 V=25 t we had chosen 1 WEIGHT UNIT be 100 kg.	0	32767	0	X	1409	LC_Y1VAL
The load between 0 and 32767 Weight units related to AI signal=x2v V or x2c mA. Parameter to enter 0 .. 32767. Same unit must be used for parameters 14.09, 14.10, 14.24, 14.25. 20 mA or 10 V from load cell must not generate more than 32767 units in ASTAT. Example: A 200 t hoist with 1/16 of the load by a load cell which gives 10 V=20 t. Say that 10 V=16 x 20=320 t weight= 320000 kg. As 320000>32767 we let 1 WEIGHT UNIT be 10 kg. If the load cell had given 10 V=25 t we had chosen 1 WEIGHT UNIT be 100 kg.	0	37767	0	X	1410	LC_Y2VAL
Not changeable					1411	USE_CALC
The reference to the ramp generator will be limited to a value of (100%-09.32) when Weight less than 14.25 unless the bypass pushbutton is pressed. The Speed limitation is made before the ramp function and only in positive direction reference (up). To decrease stresses on ropes and mechanism when hoisting with slack ropes.	0	100	0	D	1412	REDSLKpc
The nominal speed of the hoist. The given speed in meter per minutes shall be valid for motor speed = synchronous speed. Used for calculation of mass inertia contribution.	0	32767	32767	D	1423	HOIST_SP
The sum load in weight units that will stop two simultaneously operated hoists. Same kg per weight units must be used for both hoists. Hoists connected together by DATX 110 AO 2 - AI 6. Both hoists will stop at overload. Example: Crane with 200 t hoist + 60 t hoist. Totally allowed 220 t. Use 1 WEIGHT UNIT = 20 kg. Set parameter 14.24 to 11000.	0	32767	32767	D	1424	TWINSTOP

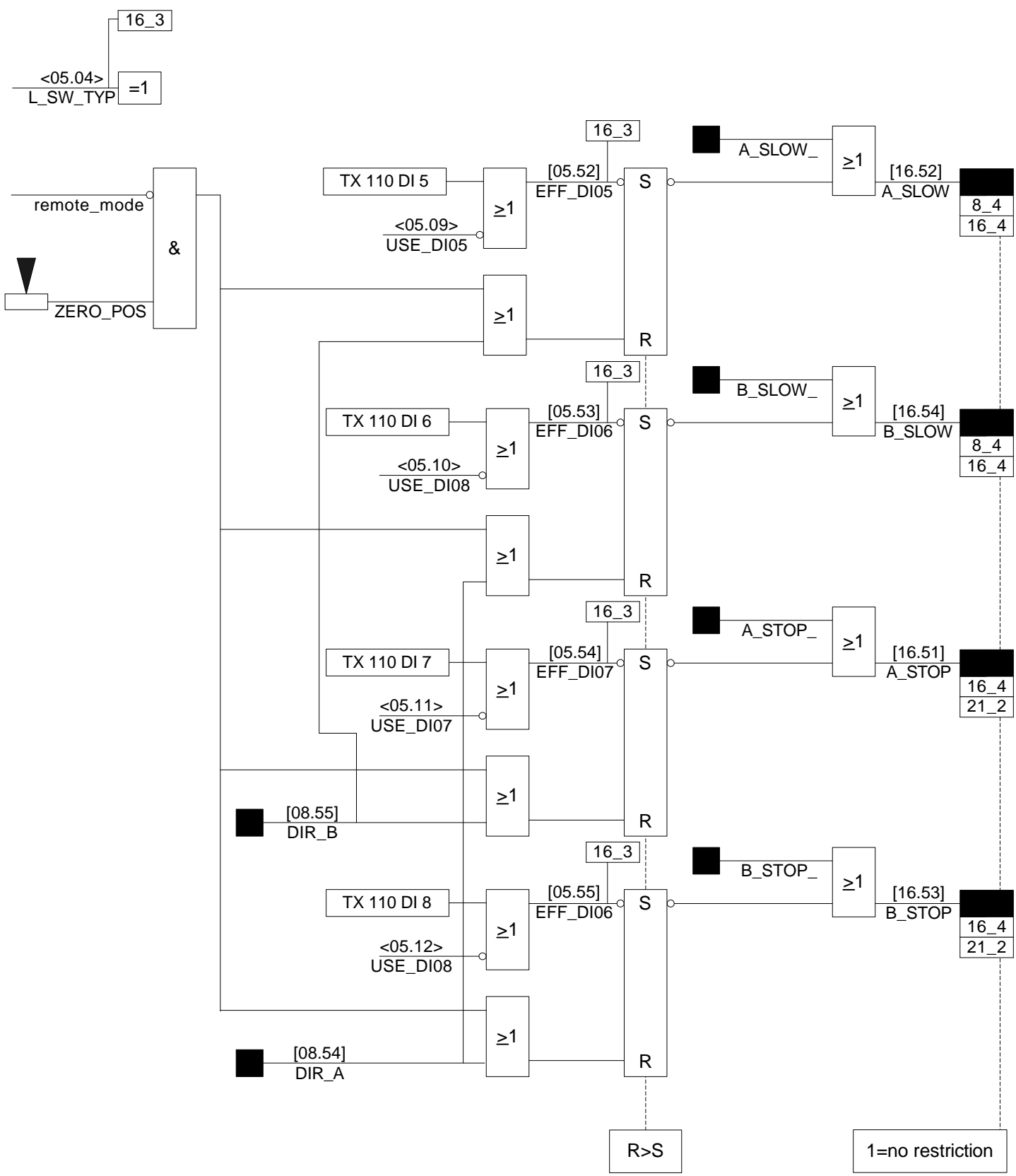
Description	MIN	MAX	NORM	SET	IDENTITY	English text
The nominal load of the hoist between 0 and 32767 Weight units. Parameter to enter 0 .. 32767. Same unit must be used for parameters 14.09, 14.10, 14.24, 14.25. 20 mA or 10 V from load cell must not generate more than 32767 units in ASTAT. Example: A 200 t hoist with 1/16 of the load by a load cell which gives 10 V=20 t. Say that 10 V=16 x 20=320 t weight= 320000 kg. As 320000>32767 we let 1 WEIGHT UNIT be 10 kg. If the load cell had given 10 V=25 t we had chosen 1 WEIGHT UNIT be 100 kg.	0	32767	32767	D	1425	NOM_LOAD
Change triggering parameter from 0 to 1 to store the signal level 14.21 for load value of parameter 14.09.	0	1	0	X	1426	SETX1VAL
Change triggering parameter from 0 to 1 to store the signal level 14.22 for load value of parameter 14.10.	0	1	0	X	1427	SETX2VAL
Enable parameter for function Cycle Time Reducer.	0	1	0	D	1428	PERM_PLG
Enable parameter for Slack Rope Protection Hoisting.	0	1	0	D	1429	PERM_RED
Enable parameter for function with summation and/or comparison of weight signals from two load cell or two hoists. The sum level is set with parameter 14.24. Requires that the two ASTAT are connected together by DATX 110 AO 2 - AI 6.	0	1	0	D	1430	TWIN_OVL
Enable parameter for function comparison of weight signals from two load cell or two hoists. If the difference in load cell measurement is larger than 30% of one load cells nominal load, the motion up is stopped and overload LED for both hoists are lit up. Requires in addition that 14.30 is set to 1. Requires that both ASTAT are connected together by DATX 110 AO 2 - AI 6.	0	1	0	D	1431	TWIN_DIF
Detection of a slack rope will have influence on the lowering . 0:not used, 1:Stopping the lowering, 2:Reducing lowering speed to END_SPpc.	0	32767	32767	D	1501	SLACK_RP

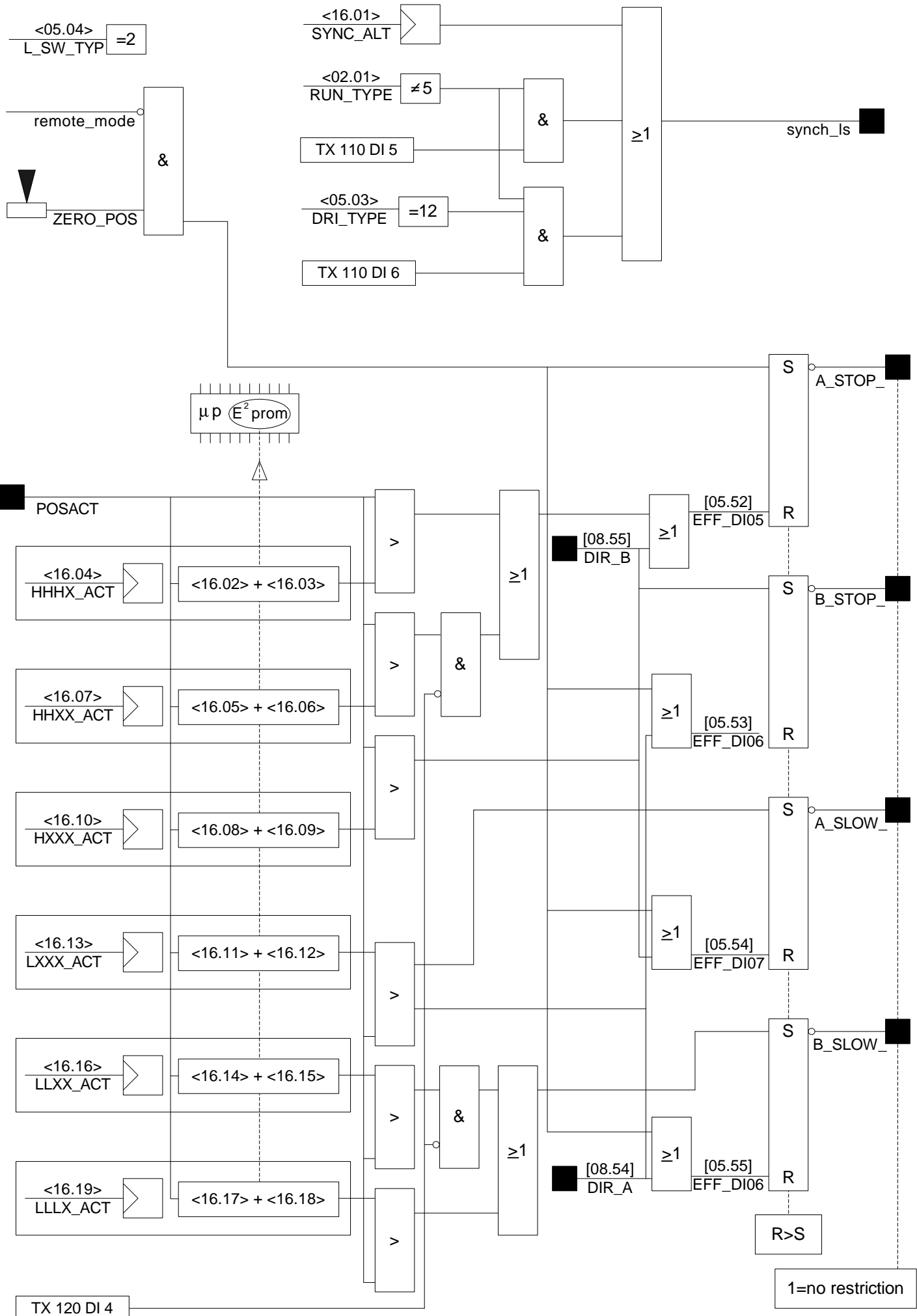
Description	Unit	IDENTITY	English text
Load in hook	Units	1450	HOOKLOAD
Load in % of rated load	%	1452	TLOAD_PC



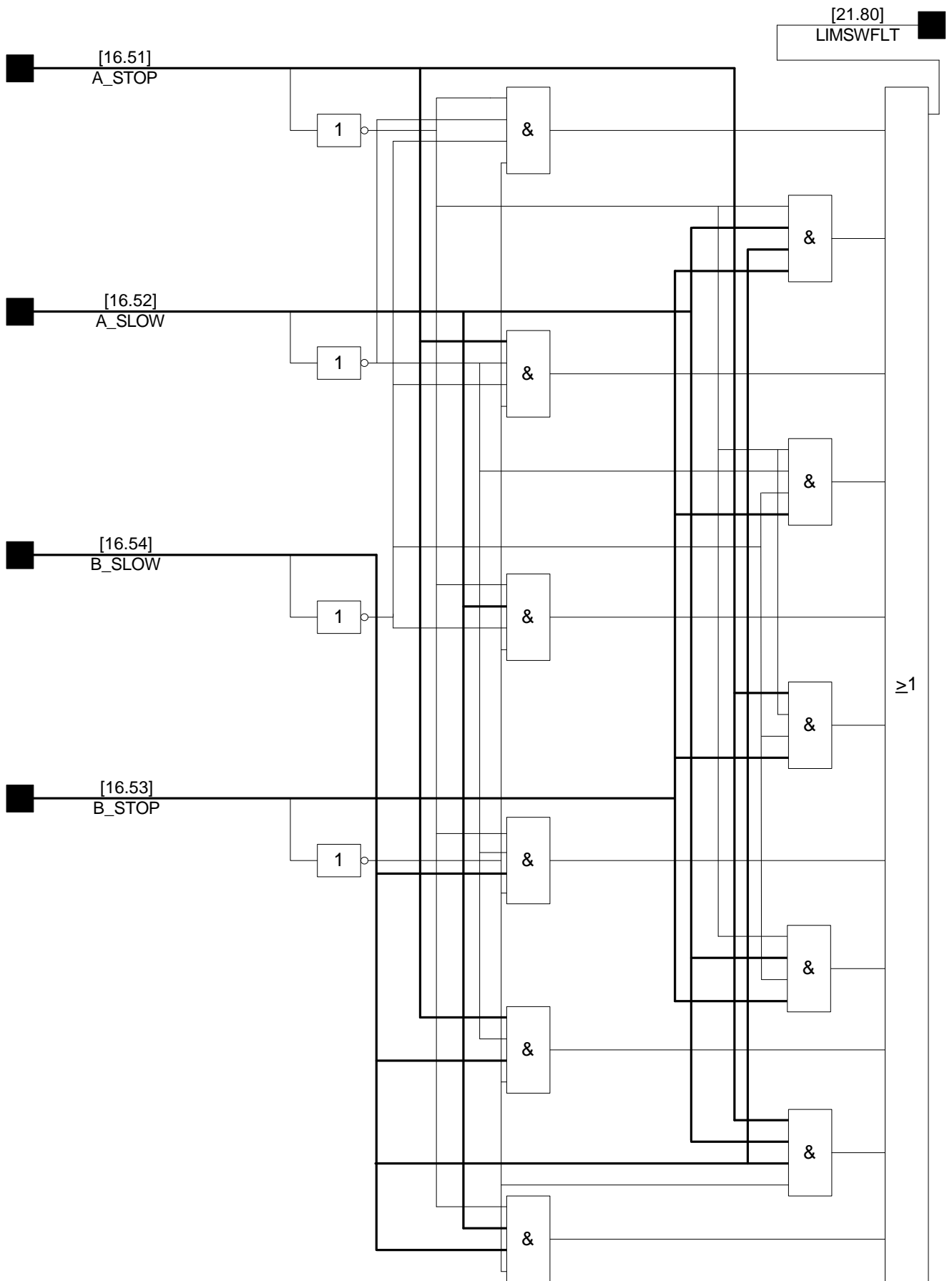
Description	MIN	MAX	NORM	SET	IDENTITY	English text
Set 1 to catch the Synchronisation position.	0	1	0	X	1601	SYNC_ACT
Difference from the current position (upper and lower 2 byte) counter to SYNC_POS set then parameter HHHX_ACT is set to 1.	-...	+...		X	1602	HHHX_POS
					1603	HHHX_LOW
Set 1 to catch the HHH position.	0	1	0	X	1604	HHHX_ACT
Difference from the current position (upper and lower 2 byte) counter to SYNC_POS set then parameter HHXX_ACT is set to 1.	-...	+...		X	1605	HHXX_POS
					1606	HHXX_LOW
Set 1 to catch the HH position.	0	1	0	X	1607	HHXX_ACT
Difference from the current position (upper and lower 2 byte) counter to SYNC_POS set then parameter HXXX_ACT is set to 1. Difference from the current position counter to SYNC_POS set by the system. This value is also set with parameter as others !	-...	+...		X	1608	HXXX_POS
					1609	HXXX_LOW
Set 1 to catch the H position.	0	1	0	X	1610	HXXX_ACT
Difference from the current position (upper and lower 2 byte) counter to SYNC_POS set by the then parameter LXXX_ACT is set to 1. difference from the current position counter to SYNC_POS set by the system. This value is also set with parameter as others !	-...	+...		X	1611	LXXX_POS
					1612	LXXX_LOW
Set 1 to catch the L position.	0	1	0	X	1613	LXXX_ACT
Difference from the current position (upper and lower 2 byte) counter to SYNC_POS set then parameter LLXX_ACT is set to 1.	-...	+...		X	1614	LLXX_POS
					1615	LLXX_LOW
Set 1 to catch the LL position.	0	1	0	X	1616	LLXX_ACT
Difference from the current position (upper and lower 2 byte) counter to SYNC_POS set then parameter LLLX_ACT is set to 1.	-...	+...		X	1617	LLLX_POS
					1618	LLLX_LOW
Set 1 to catch the LLL position.	0	1	0	X	1619	LLLX_ACT

Description	Unit	IDENTITY	English text
Stop ordered in direction A. Value = 1: No restriction	Bool	1651	A_STOP
Slow down ordered in direction A. Value = 1: No restriction	Bool	1652	A_SLOW
Stop ordered in direction B. Value = 1: No restriction	Bool	1653	B_STOP
Slow down ordered in direction B. Value = 1: No restriction	Bool	1654	B_SLOW



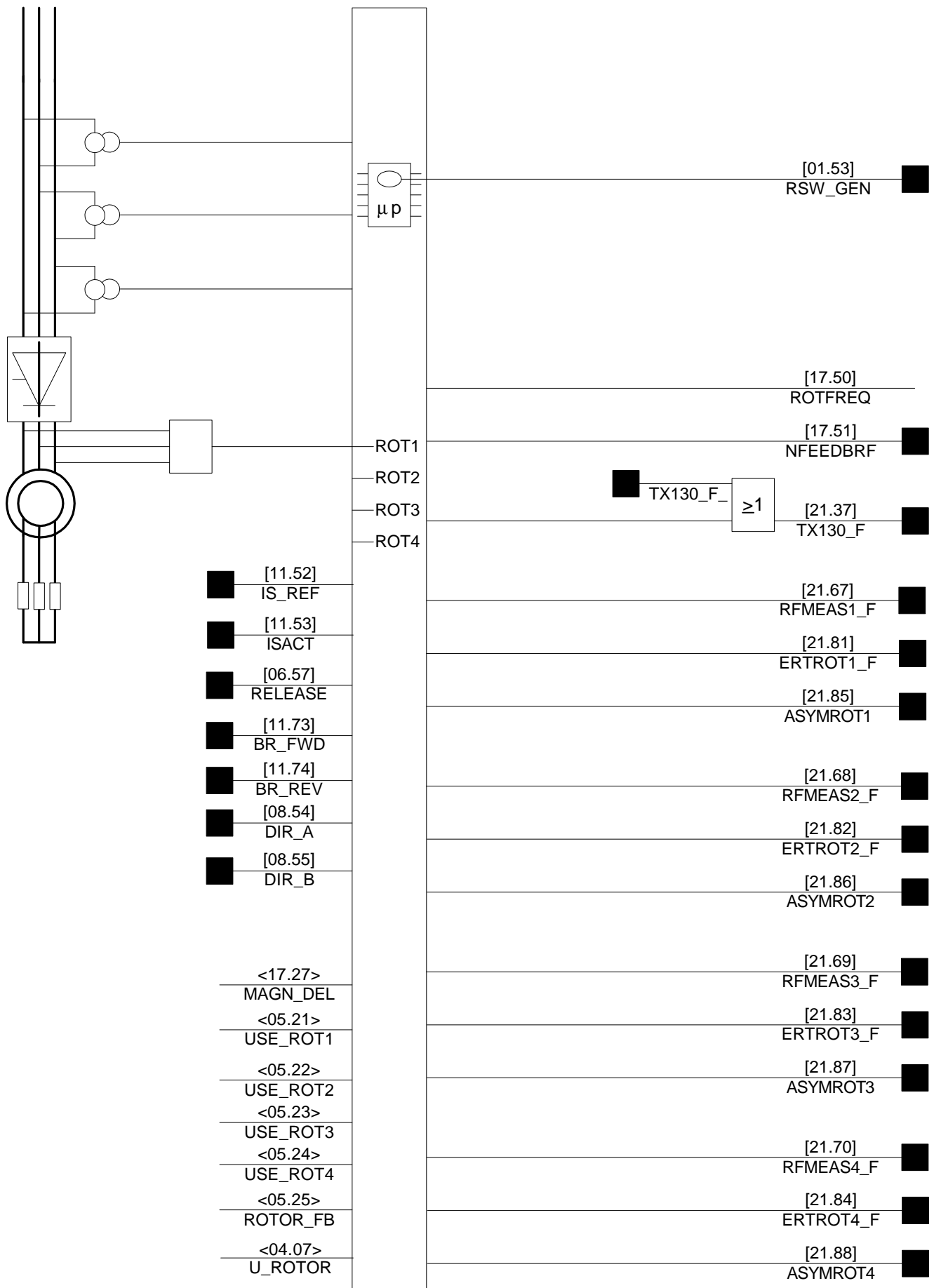






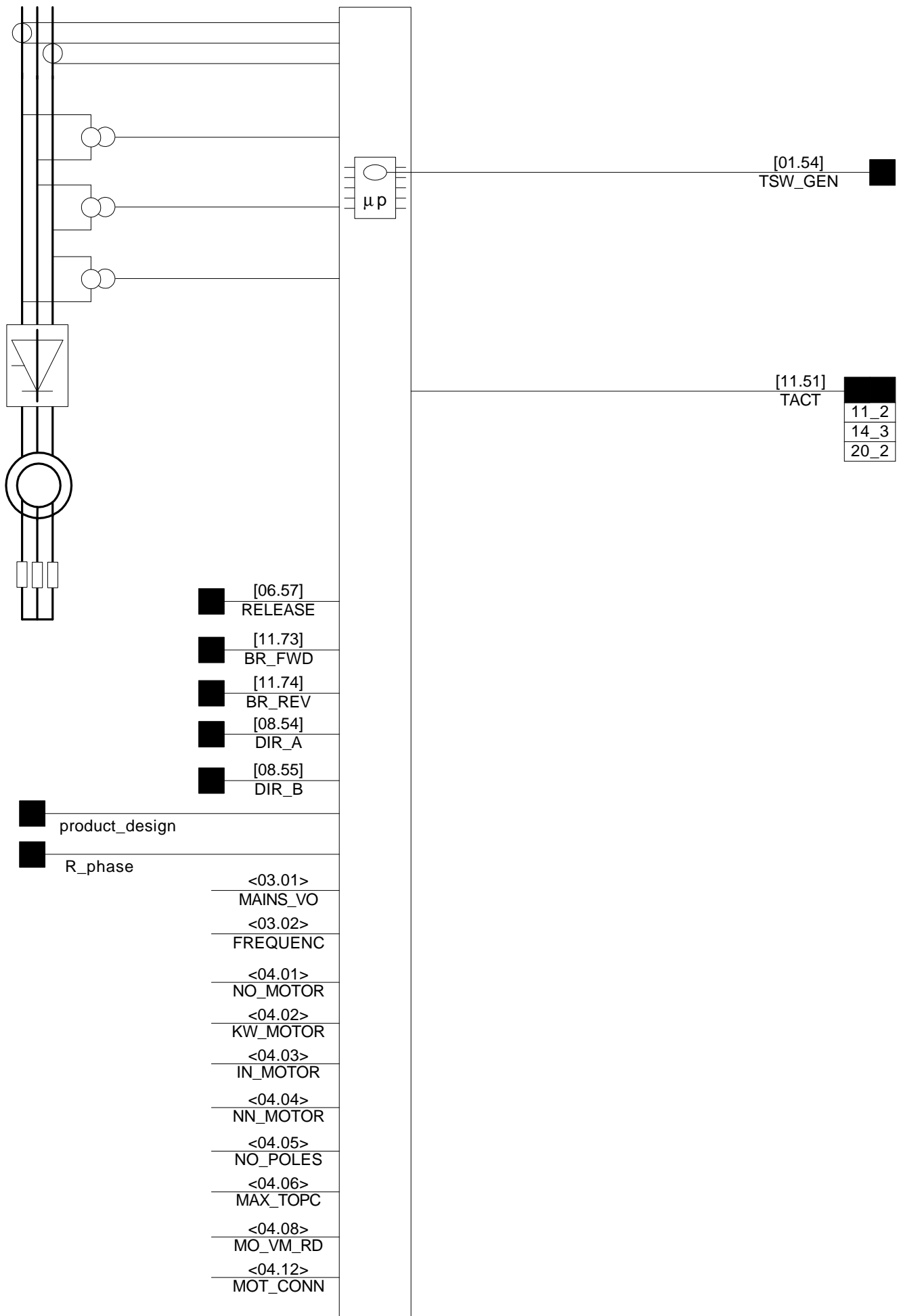
Description	MIN	MAX	NORM	SET	IDENTITY	English text
For some (small) motors it is needed to let the motor build up the rotor voltage before it is acceptable for rotor frequency feedback. The need of a time longer than 0 is noted by a false interpretation of low speed as zero speed, and the motion can make a single jerk before it is stable control mode. 0 ... 1 second. Normal 0 s = 0 ms. Set time in ms. If needed, a value around 500 ms can be tested.	0	1000	0	S	1727	MAGN_DEL

Description	Unit	IDENTITY	English text
Actual rotor frequency	Hz	1750	ROTFREQ
Speed feedback from rotor frequency estimation	%	1751	NFEEDBRF



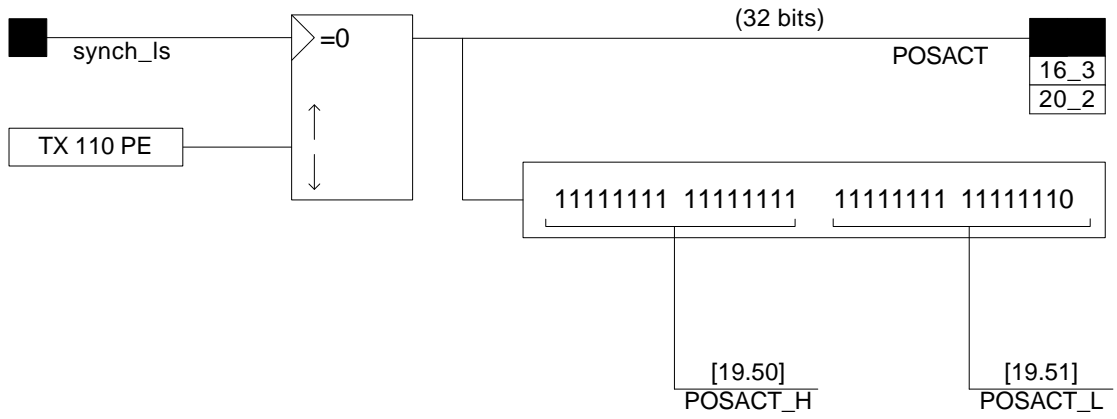
Description	MIN	MAX	NORM	SET	IDENTITY	English text

Description	Unit	IDENTITY	English text



Description	MIN	MAX	NORM	SET	IDENTITY	English text

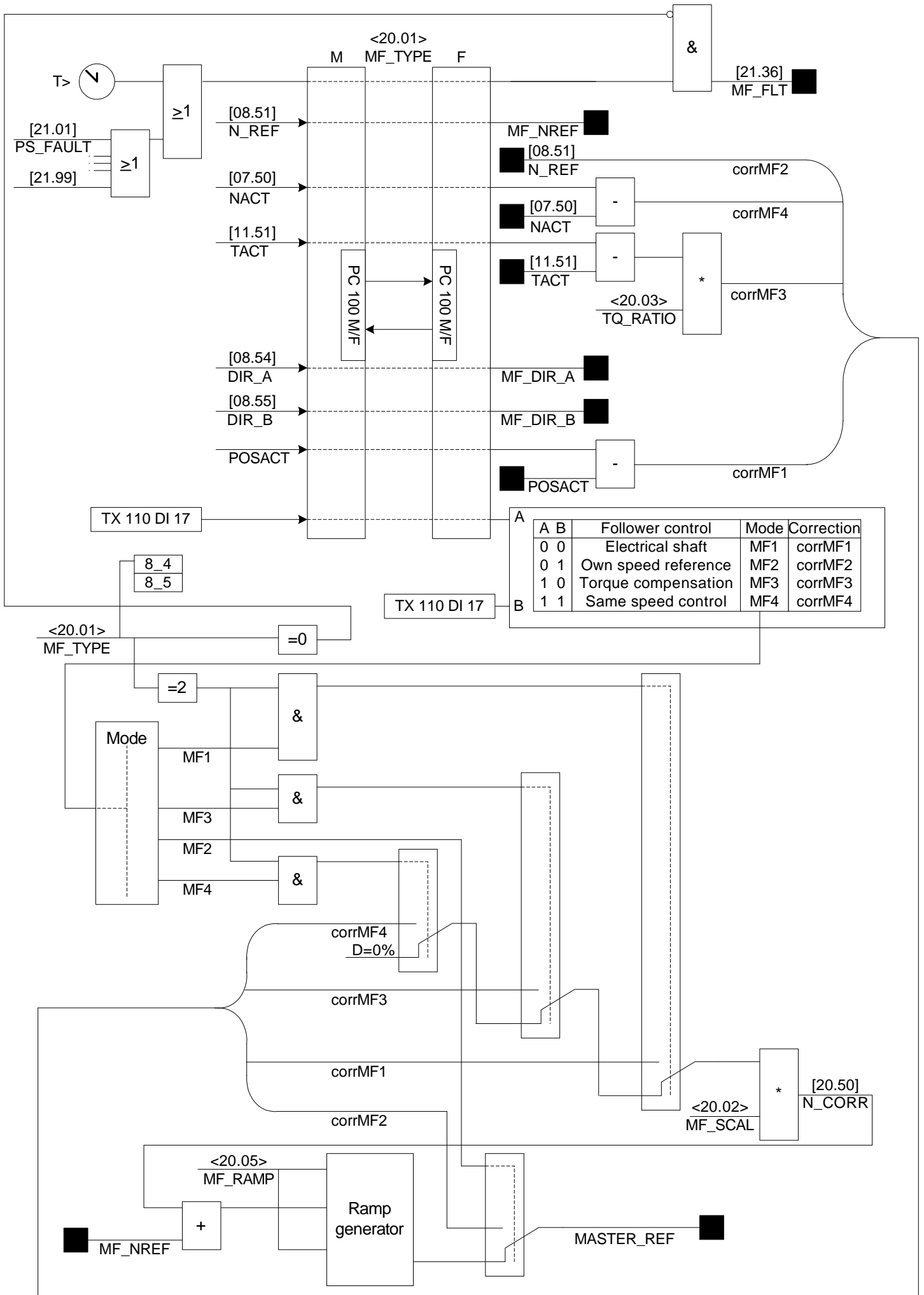
Description	Unit	IDENTITY	English text
Actual position. 16 most significant bits.	1	1950	POSACT_H
Actual position. 16 least significant bits.	1	1951	POSACT_L



Description	MIN	MAX	NORM	SET	IDENTITY	English text
Definition of the role of the ASTAT in a Master-Follower connection. 0: No Master-Follower connection 1: Master in Master-Follower connection 2: Slave in Master-Follower connection	0	4	0	D	2001	MF_TYPE
The part, in percent, of the position difference between the two motions of the Master-Follower that the Follower will compensate as: Follower Speed Reference = Master Speed reference (1+((MF_SCAL /100)Difference))	0	100	0	X	2002	MF_SCAL
Part in % of one of the two identical motors rated torque that shall be the difference in torque in torque follower mode. For positive sign the Follower is weaker	-100	100	0	X	2003	TQ_RATIO
The correction signal can be applied more softly by using a ramp function from actual to requested value. In most cases this ramp is not used, and by setting MF_RAMP to 0, there is no influence of the ramp. A value less than values of parameters 08.02 and 08.03 can give better performance when switching between sub modes MF1 - MF4	0	32000	0	X	2005	MF_RAMP

Description	Unit	IDENTITY	English text
The correction speed reference given to the Follower when in Follower mode.	%	2050	N_CORR





Description	MIN	MAX	NORM	SET	IDENTITY	English text
0= Accept that uncontrolled stops can be reset with normal Crane On push button. 1= Require that electrical maintenance shall reset the uncontrolled stop by switching control power off-on.	0	1	0	D	2203	PT_FLT_S
0= Let DO 7 be high for any Fault. 1= Only faults presented on the Cabin I/O LED-display.	0	1	0	D	2204	ALLFAULT

Description	Unit	IDENTITY	English text
PHASE SEQUENCE WRONG or FREQUENCY OUT OF RANGE		2101	PS_FAULT
PHASE L1 MISSING		2102	L1_MISS
PHASE L2 MISSING		2103	L2_MISS
PHASE L3 MISSING		2104	L3_MISS
LINE VOLTAGE L1 < Set level		2105	L1_FAULT
LINE VOLTAGE L2 < Set level		2106	L2_FAULT
LINE VOLTAGE L3 < Set level		2107	L3_FAULT
DAPC 100 ERROR		2131	PC100_F
DATX 110 NOT FOUND		2132	TX110_F
DATX 120:1 NOT FOUND		2133	TX121_F
DATX 120:2 NOT FOUND		2134	TX122_F
DATX 120:3 NOT FOUND		2135	TX123_F
MASTER-FOLLOWER ERROR		2136	MF_FLT
DATX 130 NOT FOUND		2137	TX_130F
110 V DC TOO LOW		2143	LOW_110V
110 V DC EARTH FAULT		2144	EFLT110V
UNBALANCE; PARALLEL BRIDGES		2146	BR_ASYM
ERROR IN THYRISTOR TEMPERATURE MEASUREMENT		2147	TEMP_ERR
CRANE UNCONTROLLED STOPPED		2148	EM_STOPD
Mismatch of reference polarity and direction signals of joystick Manual operation: JOYSTICK NOT IN NEUTRAL SWITCHING WHEN SHARED MOTION WAS SELECTED / Computer operation: REMOTE OPERATION ABNORMALLY ENDED. MASTER SWITCH OUT OF ZERO or COMMUNICATION BREAK DOWN		2150	DIR_CODE
		2151	ERR_CODE
PTC TRIP no.1		2152	PTC1TRIP
PTC TRIP no.2		2153	PTC2TRIP
PTC TRIP no.3		2154	PTC3TRIP
PTC TRIP no.4		2155	PTC4TRIP
BRAKE NO ACK. no.1		2157	BACK1FLT
BRAKE NO ACK. no.2		2158	BACK2FLT
BRAKE NO ACK. no.3		2159	BACK3FLT
BRAKE NO ACK. no.4		2160	BACK4FLT
CABLE RELAY no.1		2161	CBR1_FLT
CABLE RELAY no.2		2162	CBR2_FLT
CABLE RELAY no.3		2163	CBR3_FLT
CABLE RELAY no.4		2164	CBR4_FLT
SPEED DEVIATION		2165	SPMEAS_F
PULSE TRANSMITTER FAULT		2166	PT_FAULT
ROTOR FREQ. MEAS FAULT no.1		2167	RFMEAS1_F
ROTOR FREQ. MEAS FAULT no.2		2168	RFMEAS2_F
ROTOR FREQ. MEAS FAULT no.3		2169	RFMEAS3_F
ROTOR FREQ. MEAS FAULT no.4		2170	RFMEAS4_F
TORQUE FAULT		2171	TO_FAULT
OVERLOAD, DI		2172	OVL_DI
OVERLOAD, AI		2173	OVL_AI
OVERSPEED, DI		2175	OSP_DI
OVERSPEED, CALCULATED		2176	OSP_CALC
OVERTEMP. THYRISTORS		2177	OH_STACK
SLACK ROPE; SLOW DOWN		2178	SLRPSLOW
SLACK ROPE; STOP		2179	SLRPSTOP
NOT POSSIBLE LIMIT SWITCH VALUES		2180	LIMSWFLT

Description	Unit	IDENTITY	English text
EARTH FAULT ROTOR no.1		2181	ERTROT1_F
EARTH FAULT ROTOR no.2		2182	ERTROT2_F
EARTH FAULT ROTOR no.3		2183	ERTROT3_F
EARTH FAULT ROTOR no.4		2184	ERTROT4_F
UNSYMMETRICAL ROTOR no.1		2185	ASYMROT1
UNSYMMETRICAL ROTOR no.2		2186	ASYMROT2
UNSYMMETRICAL ROTOR no.3		2187	ASYMROT3
UNSYMMETRICAL ROTOR no.4		2188	ASYMROT4
TACHOMETER FAULT		2189	TG_FAULT

