

**TYRAK XL / TYRAK LCI
Rod and Bar Mill Program
for large d.c/a.c. drive
systems**

DSRB01XX User's manual

Edition 3

Reg. nr. 3ASD 4890 04C 1012.

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Introduction

The Control Program DSRB, as described in this manual, covers co-ordinated drive applications in rod and bar mills. The following control functions are available:

- Sequence logic including armature and field convertor control and also control logic for functions like emergency stop, dynamic braking and master drive/follower drive.
- Torque signal handling
- Speed control, advanced performance type
- Speed reference handling including ramp generator
- Position control
- Protective and monitoring functions
- Diagnostic system and fault indication
- Communication interface including I/O and bus communication.

The control program described in this manual is designated DSRB01XX.

- DSRB represents the program functionality.
- 01 is a version index.
- XX is a revision index.

A change of version will result in new documentation. A change of revision does not affect the documentation.

About this document

This DSRB User's Manual includes:

- Block diagram.
- Description of software functions.
- List of parameters.
- List of signals.
- Program Diagram (PD).

Program diagram, PD

The program is built up by a number of function modules. The program diagram (PD), describes all function modules in detail. The modules are executed in a pre-determined order which is the same as the order of appearance in the program diagram. The lay-out of the program diagram is that all signals go from left to right.

Signals written with capital letters can be displayed on the operator's panel or on a terminal screen. Signal names within brackets, e.g. (MOTSP1), can only be displayed on a terminal screen. Signal names written with lower case letters in the program diagram are internal (can not be read).

The program is all digital and therefore parts of the program (elements) are executed at different sample times. The sample times are as follows:

Ts	Sample time (ms)
I1	2.8 (60 Hz), 3.3 (50 Hz)
T1	5
T2	10
T3	20
T4	80
BG	background
INIT	at start up

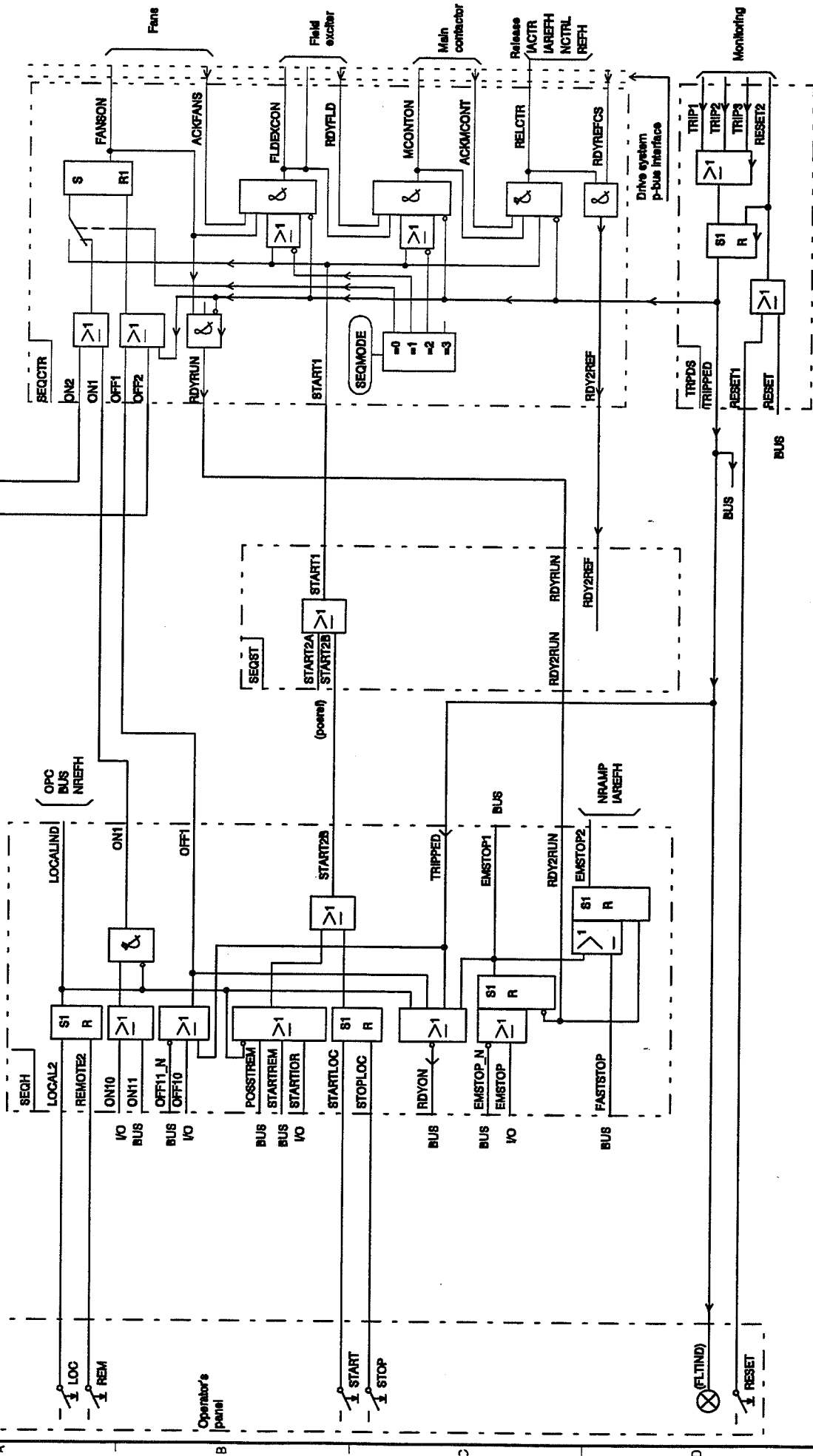
Circuit diagram, CD

A circuit diagram is included in each delivery, showing the exact configuration of the hardware circuits.

The circuit diagram has a functional layout, with orders going from left to right and acknowledgement signals going in the opposite direction.

Block diagram

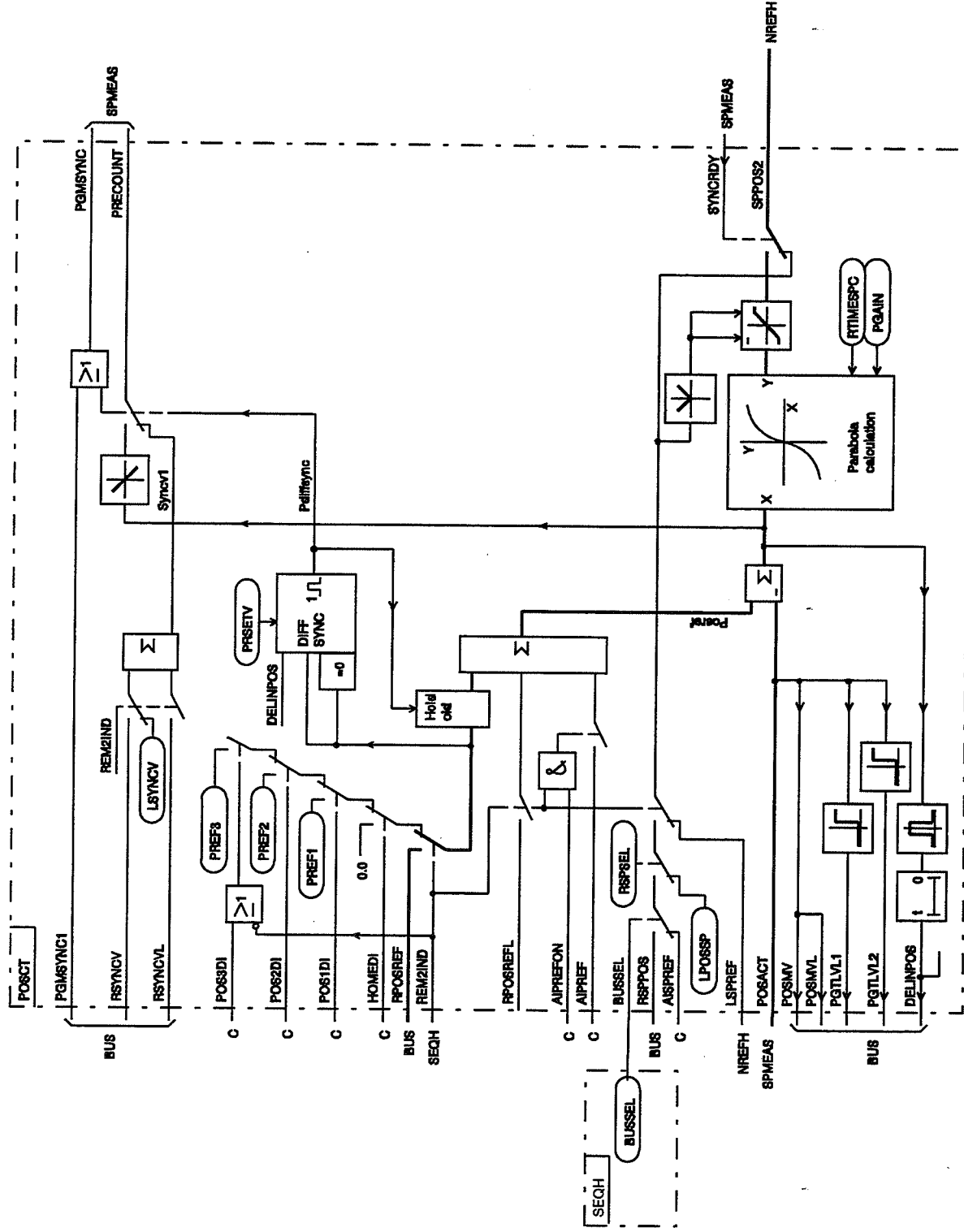
The block diagram describes the most essential parts of the program. The purpose of the diagram is to show the connection of the main modules and signals. The block diagram has a functional layout, with orders going left to right and acknowledgement signals going in the opposite direction.



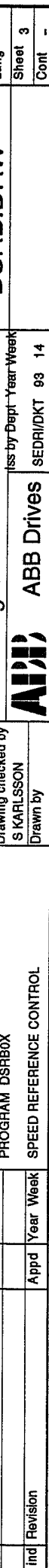
TYRAK XL/LCI		Block diagram		File DSRB.DRW		Lang
PROGRAM DSRB0X		ABB Drives		Iss by Dept Year Week		Sheet 1
SEQUENCE CONTROL		DESIGNED BY S SVENSSON		SEDRI/DKT 93 14		Cont 2
Rev Ind	Revision	Appd	Year Week	Drawn by SK		
		Drawing checked by S KARLSSON				
		Design checked by S SVENSSON				

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ABB Drives.



TYRAK XL/LCI		Block diagram		File DSRB.DRW	
PROGRAM DSRBOX		Iss by Dept Year Week		Lang	
POSITION CONTROL		SEDRI/DKT 93 14		Sheet 2	
Rev Ind Revision		Appd Year Week		Cont 3	
		Design checked by		ABB Drives	
		S SVENSSON			
		Drawing checked by			
		S KARLSSON			
		Drawn by			



System components

The software for a complete drive is split up in three levels:

- DSRB, Drive control
- CXXX Converter control
- FEXX Field exciter control

The communication between the software levels is carried out by means of an opto serial link called *the drive system bus interface*.

Drive control

The drive control functions are realised as software implemented in a separate control equipment complete with hardware such as computer and memory boards, I/O and bus interface and mechanics as well as software modules linked together to perform the particular functions of the application. The drive control system has facilities for controlling the a.c. line connection breaker(s).

Converter control

The drive application may include one or two converters which has its own separate control equipment, complete with computer, auxiliary power, hardware and software facilities.

Field exciter

The motor fields are supplied from computer controlled field exciter ("digital field exciter").

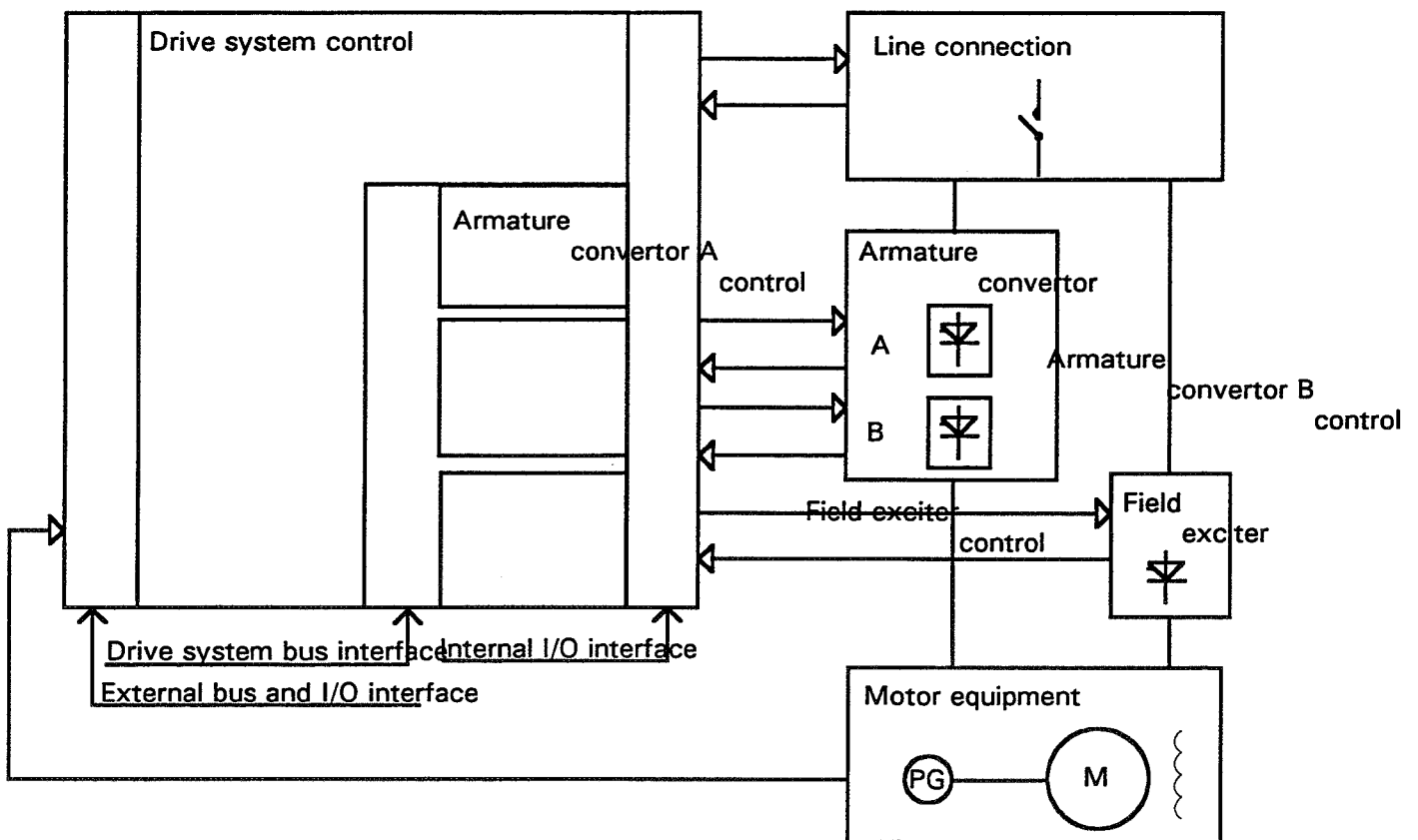


Fig .1 System components and configuration

Operating stations

The drive may be operated from various operating stations. These may be:

- a remote station e.g. central control room or higher level computer system. The communication between the remote station and the drive control is normally done with the master field bus, see fig. 2.
- the operator's panel located on the convertor cubicle, see fig. 3.
- an operator's console connected via the remote station or to the I/O terminals in the drive. The speed setting may be with an adjustable reference voltage e.g. from a potentiometer connected via an analogue input as in fig. 4.

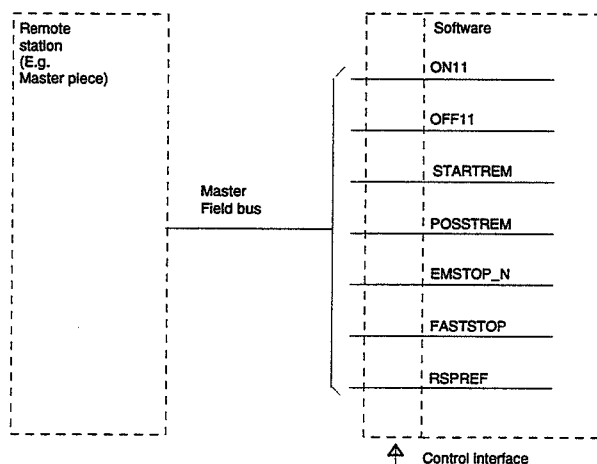


Fig. 2 Remote operating station

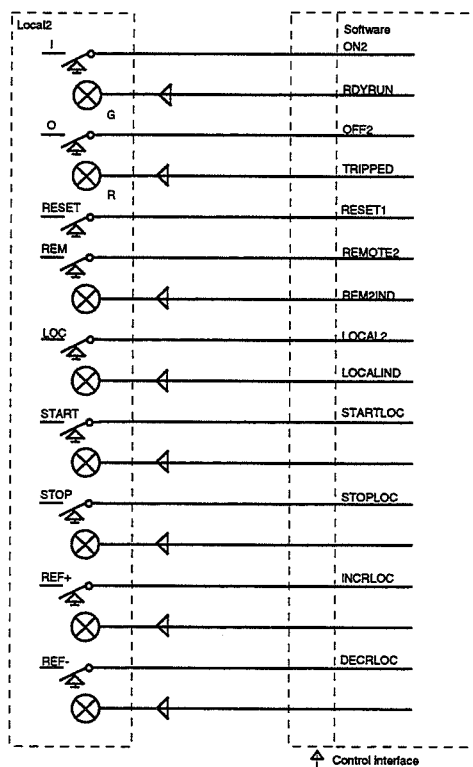


Fig. 3 Operation from operator's panel.

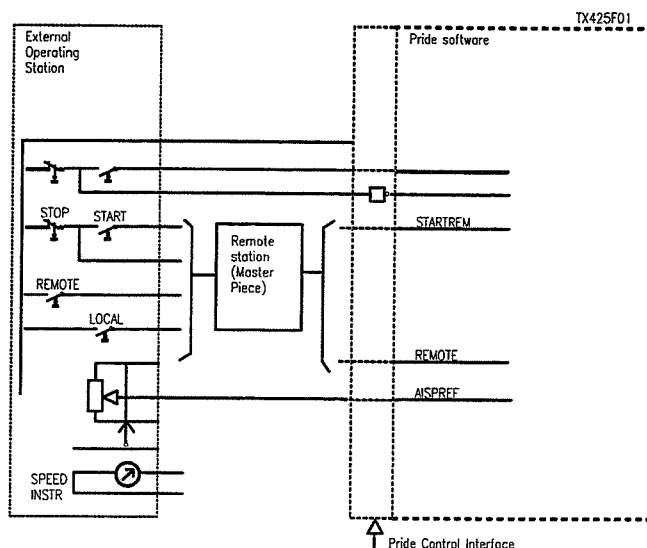


Fig. 4 Example of start/stop and potentiometer speed setting from an external operating station via I/O interface .

Sequence control

ON/START and OFF/STOP sequences

The program allows a split start and stop sequence which means that the starting and stopping of the drive is arranged in two steps. The first step is executed by the ON command, bringing the drive from disconnected condition to *ready for run*. The second step is executed by the START command, bringing the drive from the condition *ready for run* to *ready for reference*.

This split sequence has four modes of execution controlled by the parameter SEQMODE, see fig. 5. The on-start/off-stop sequence for the default setting of this parameter (SEQMODE= "3") is described below. When the ON order reaches the software signal ON2 ON11 or ON10, the ON sequence will be executed, connecting the fans, the field exciter and the armature convertor to the supply line. The sequence logic will then remain standby, waiting for the START order to appear.

Upon a START order, the control system is released and the motor is permitted to rotate with a speed corresponding to the reference signal presented to the speed controller.

A STOP order will bring the drive to standstill.

In case of an OFF order, the OFF sequence is executed, disconnecting the complete drive from the supply line. The disconnection of the armature convertor, however is delayed so that the convertor control equipment is blocked first.

Torque control

The sequence logic operation for other settings of the SEQMODE parameter is shown in fig. 5.

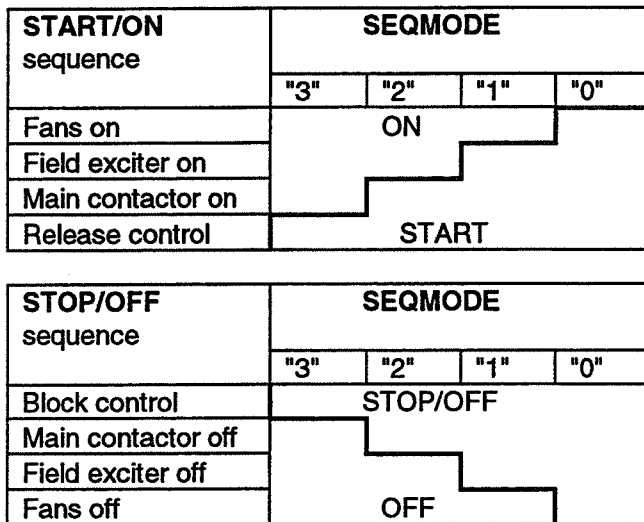


Fig. 5 Start-stop sequence modes.

Emergency stop logic

When pushing the *emergency stop push button*, the drive will normally stop on current limit. Alternatively, by setting of the appropriate parameters, the emergency stop may be on the normal ramp or faster emergency stop ramp. It is also possible to involve dynamic braking during emergency stop by activating the brake control module.

Dynamic braking logic

The dynamic braking logic coordinates the operation of the braking operation and the start/stop logic of the drive.

The torque control is performed by the armature current controller, receiving the torque reference from the speed controller.

Inside the speed controller modules, the current reference can be switched from speed control to torque reference mode. This possibility is used in master/follower drive arrangements. In torque reference mode, the follower drive receives its torque reference from the master drive.

As the output from the speed controller has an adjustable limit setting, i.e. the current limit, the maximum torque during acceleration and retardation is limited.

The current limit may alternatively be set from an external source.

Speed control

The motor speed will be measured with a pulse generator, see fig. 8. The control algorithms for the controller can be either PI, PIP/DPPI or PI-RFE. The RFE is used in systems with resonance and backlash to increase performance by means of active elimination of resonance. The behaviour and performance characteristics of the speed control loop are adjusted by setting a number of program parameters, which normally is done on the operator's panel.

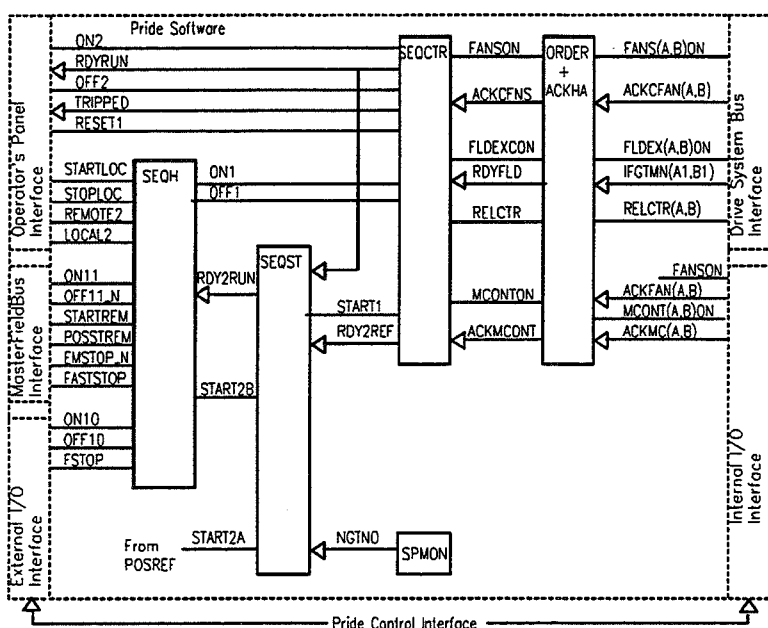


Fig. 6 Sequence control software.

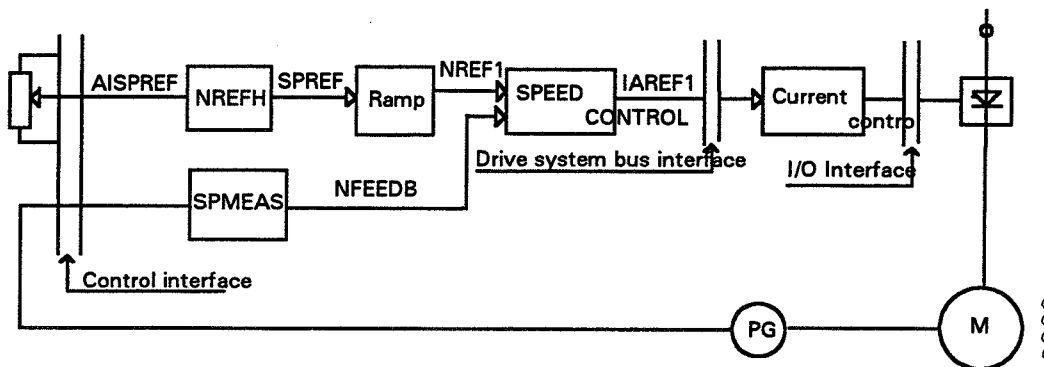


Fig 8 Speed control loops with tacho or pulse transmitter feedback.

Speed reference handling

The speed is set from the selected operating station, e.g. the central control room (REMOTE) or the operator's panel in the convertor (LOCAL2).

Increase/decrease reference ordering

For test purposes, the speed reference software accepts increase/decrease orders from the REF+/REF- keys in the operator's panel. The software signals INCRLLOC and DECRLOC carries the order information onto the increase/decrease function in the module TESTDS, see fig. 9.

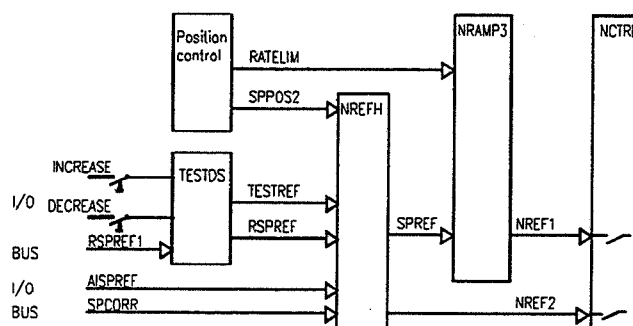


Fig. 9. Speed reference signals and modules

Reference generation

The speed may also be set with a continuously adjustable reference order e.g. from an external reference potentiometer connected to the signal AISPREF via the I/O interface, see fig. 9.

Ramp function

The reference signal SPREF is connected via the ramp function module NRAMPX, see fig. 9. When the speed reference is received from the position control, the output signal from NRAMPX will follow the position controls speed reference without ramp delay.

Position control

The position control is realised as a major loop to the speed control using the pulse train from the same pulse transmitter as for the speed feedback for calculation of the actual position POSACT, see fig. 10. The position reference POSREF is generated in the higher level MasterPiece system and transferred to the control system via the MasterFieldBus.

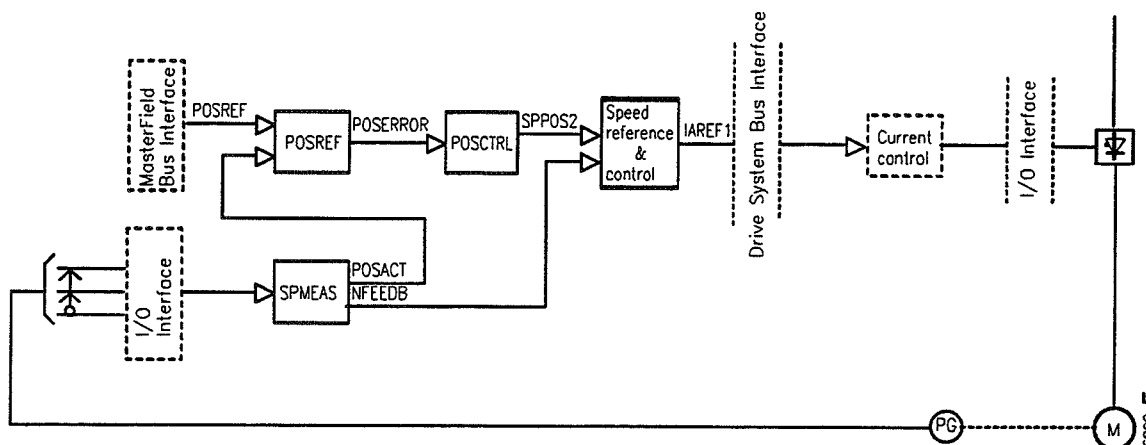


Fig. 10 Position control.

Protective and monitoring system

Tripping

The protective and monitoring system comprises fault situation detection, sorting and combining the faults into fault categories, tripping the drive and reporting the situation to the fault indication and diagnostics system.

A fault situation is reported to one of the trip module TRP (DS, CS or FE). Depending of the fault category, a trip signal is ordered to a certain level of the trip and on/off sequence of the sequence control system, see fig. 12.

In the SEQCTR module relevant parts of the drive are tripped in the correct sequence and the fault is reported. Some faults, e.g. overcurrent and undervoltage will phase retard and block the convertor instantaneously.

Sequence control

The sequence control monitors the connection and disconnection of the internal and external fans, the main contactors and the field exciters. These monitoring functions are found in the convertor sequence control module SEQMO in the drive system software.

Motor speed

The motor speed monitor has one zero-speed indication, one overspeed indication for tripping and two speed level indications for optional use. The presence of the speed feedback is also monitored, the drive is tripped in case the feedback disappears. It is also possible to indicate overspeed via an external monitor and a digital signal.

Stall condition

The motor is protected against stalling condition by permitting an adjustable stalling current during standstill for a certain adjustable stalling time interval. Stalling condition will trip the drive.

Motor load

The motor is protected against thermal overload by monitoring the armature current. The monitor has adjustable levels for overload tripping, alarm and time delay.

Motor temperature

The motor temperature monitor accepts PT100 inputs for monitoring motor temperature. When the temperature reaches certain adjustable levels, alarm or tripping respectively is activated.

External faults

The program includes software to accept three external fault signals to give tripping of the drive, see also Diagnostic system and fault indication.

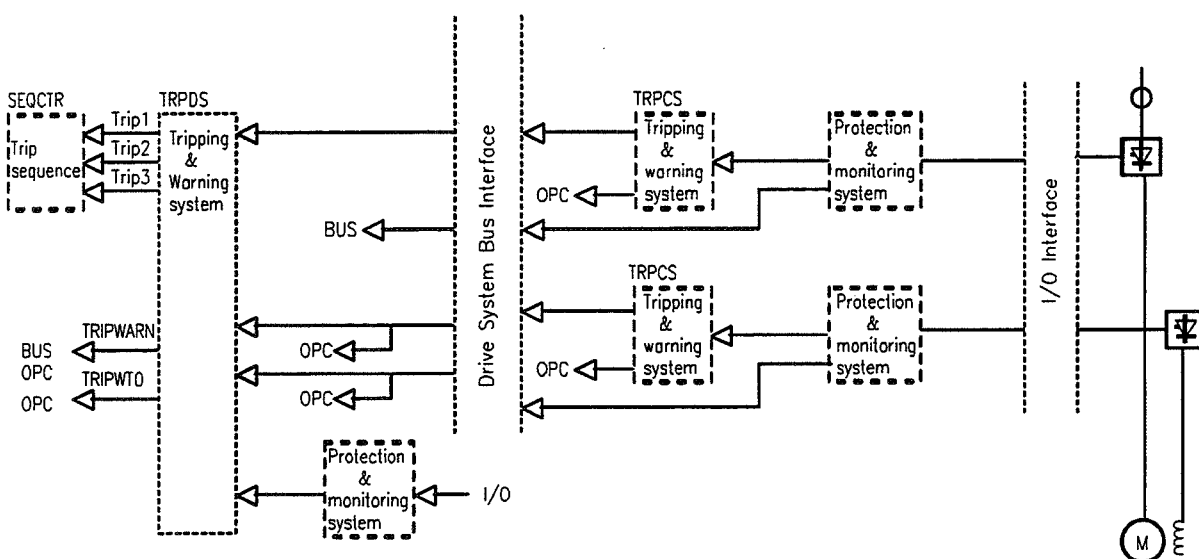


Fig 12 Tripping system External fault handling

Diagnostic system and fault indication

Faulty operation is reported to the fault indication and diagnostic system from where the information about failures and possible measures is made available to the operating and servicing staff.

Fault information software signals

The software contains signals (variables) carrying information about the conditions in the system. Some of these signals are used by the system itself to take appropriate action, while others are reported to the operator's panel for displaying of the information.

The list below contains some examples of software signals which are used to report important information about the condition of the system.

TRIPPED	The drive has tripped
RDYRUN	The convertor is ready to operate
RDYREF	The convertor is ready to receive current reference
RDY2RUN	The drive is ready to run
RDY2REF	The drive is ready to accept references
ARMHLW	High armature load

Besides indication of faults in the drive itself, the program has software to accept and indicate three external faults on the operator's panel. The external fault signals are also available for tripping of the drive, see Protective and monitoring system.

Fault messages

Fault information e.g. tripping and warning signals are displayed on the operator's panel in legible text, see relevant pages of the circuit diagram (PD).

System test

Commissioning and fault tracing are supported by built-in system test functions controlled from the TESTDS module. A number of testmodes may be selected by the parameter TESTMODE, see the commissioning and the fault tracing instructions respectively for further details.

Control interface and communication

I/O interface

The communication between the software and the external hardware involves the basic terminal and conversion board YPQ 202 and the modules for connection between the external signals channelled into software signals, see fig. 13. These modules are also called the software switch box.

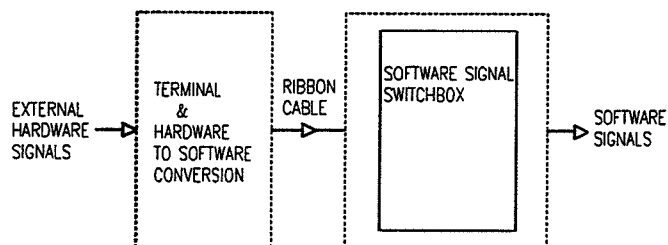


Fig. 13 I/O communication interface (TM362F01).

Basic I/O interface

In the basic I/O interface the following communication channels are available:

I/O type	No. of channels	Separation	Note
Digital input	8	Opto	
Digital output	5	Relay	
Analog input	4 ¹⁾	High ohmic diff. ampl.	Resolution 0.05 percent
Analog output	2	High ohmic diff. ampl.	Resolution 0.05 percent
Pulse transmitter input	3	Opto	

1) Facilities for accepting tacho feedback inclusive.

The basic I/O interface also includes terminals for connection of meters for actual armature current and actual speed.

Expansion I/O interface

The program includes software for the following expansion I/O interface:

I/O type	No. of channels	Separation	Note
Digital input	8	Opto	
Digital output	8	Relay	
Analogue input	4 ¹⁾	High ohmic diff. ampl.	Resolution 0.05 percent
Analogue output	4	High ohmic diff. ampl.	Resolution 0.4 percent

1) Facilities for accepting tacho feedback inclusive.

In case the expansion I/O interface is wanted, optional hardware must be ordered and the software must be activated. In this case also observe that some software signals are tied up to the bus interface and therefore are not available for the I/O communication.

Bus interface for serial communication

For communication with the MasterPiece system, and between master/follower drives, the program includes a high speed serial communication interface, see fig. 14.

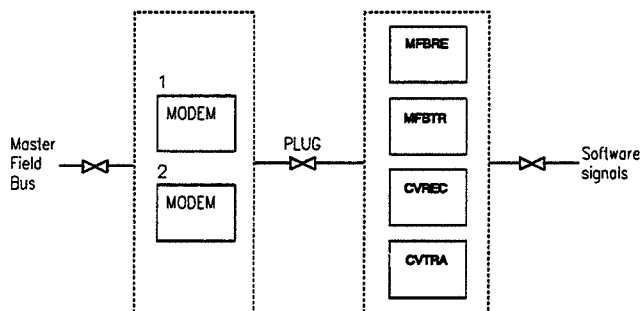


Fig. 14. Bus interface for serial communication.

Bus interface for internal communication

The communication between the different computers in the system is carried out by means of an internal serial bus, the Drive System Bus Interface.

List of parameters

Following is a list of all parameters in program DSRB01XX.

How to read the table:

Parameter	Unit	Range	OPC	Term.	Parameter full name
1).....	2).....	3).....	4).....	5).....	6)

- 1) Name of the parameter.
- 2) Unit for parameter on the operator's panel (OPC).
- 3) Range for parameter on the operator's panel.
- 4) Default value for the parameter as shown on the operator's panel.
- 5) Default value for parameter as shown on the terminal aid. Decimal number system.
- 6) Parameter name without abbreviation.

ACCC10X (273)

Parameter	Unit	Range	OPC	Term.	Parameter full name
ACCS	Log	"0", "1"	"0"	"0"	ACCeleration Select
ACCTC1	msec	0-32767	24	24	ACCeleration Time Constant 1
ACCTC2	msec	0-32767	12	12	ACCeleration Time Constant 2
LJREL	No Unit ..	0.00-128.00	1.00.....	256	Local J(inertia) RELative
SPCORRSF	No Unit ..	0.000-1.000	0.030.....	492	SPEED CORRection Scale Factor

ACKHA2X (229)

Parameter	Unit	Range	OPC	Term.	Parameter full name
ACKMCDEL	msec	0-32767	1500.....	1500	ACKnowledge Main Contactor DELay
IFAACKBL	Log	"0", "1"	"0"	"0"	IF (field current) A Acknowledge BLock
IFBACKBL	Log	"0", "1"	"0"	"0"	IF (field current) B Acknowledge BLock

AI330X (211)

Parameter	Unit	Range	OPC	Term.	Parameter full name
AAI33	Log	"0", "1"	Not.....	"0"	Attach Analog In 33
AI33.1MO	No unit...	0-32767	Not.....	1	Analog In 33.1 MObde
AI33.1MU	No unit...	±32767	Not.....	2048	Analog In 33.1 MUltiplier
AI33.2MO	No unit...	0-32767	Not.....	1	Analog In 33.2 MObde
AI33.2MU	No unit...	±32767	Not.....	2048	Analog In 33.2 MUltiplier
AI33.3MO	No unit...	0-32767	Not.....	1	Analog In 33.3 MObde
AI33.3MU	No unit...	±32767	Not.....	2048	Analog In 33.3 MUltiplier
AI33.4MO	No unit...	0-32767	Not.....	1	Analog In 33.4 MObde
AI33.4MU	No unit...	±32767	Not.....	2048	Analog In 33.4 MUltiplier

AI370X (212)

Parameter	Unit	Range	OPC	Term.	Parameter full name
AI37.1MO	Log.....	"0","1"	Not.....	"1"	Analog In 37.1 MDe
AI37.2MO	Log.....	"0","1"	Not.....	"1"	Analog In 37.2 MDe
AI37.3MO	Log.....	"0","1"	Not.....	"1"	Analog In 37.3 MDe
AI37.4MO	Log.....	"0","1"	Not.....	"1"	Analog In 37.4 MDe
AI37.1MU	No unit...	±16.00	1.00	2048	Analog In 37.1 MUltipplier
AI37.2MU	No unit...	±16.00	1.00	2048	Analog In 37.2 MUltipplier
AI37.3MU	No unit...	±16.00	1.00	2048	Analog In 37.3 MUltipplier
AI37.4MU	No unit...	±16.00	1.00	2048	Analog In 37.4 MUltipplier

AO340X (286)

Parameter	Unit	Range	OPC	Term.	Parameter full name
AAO34	Log.....	"0","1"	Not.....	"0"	Analog Out 34
AO34.1MO	No unit...	0-32767		1	Analog Out 34.1 MDe
AO34.1MU	No unit...	256.00	1.00	128	Analog Out 34.1 MUltipplier
AO34.1OF	%	±100.00		0	Analog Out 34.1 OFset
AO34.2MO	No unit...	0-32767		1	Analog Out 34.2 MDe
AO34.2MU	No unit...	256.00		128	Analog Out 34.2 MUltipplier
AO34.2OF	%	±100.00		0	Analog Out 34.2 OFset
AO34.3MO	No unit...	0-32767		1	Analog Out 34.3 MDe
AO34.3MU	No unit...	256.00		128	Analog Out 34.3 MUltipplier
AO34.3OF	%	±100.00		0	Analog Out 34.3 OFset
AO34.4MO	No unit...	0-32767		1	Analog Out 34.4 MDe
AO34.4MU	No unit...	256.00		128	Analog Out 34.4 MUltipplier
AO34.4OF	%	±100.00		0	Analog Out 34.4 OFset

AO370X (287)

Parameter	Unit	Range	OPC	Term.	Parameter full name
AO37.1MU	No unit...	±256.00	1.00	128	Analog Out 37.1 MUltipplier
AO37.2MU	No unit...	±256.00	1.00	128	Analog Out 37.2 MUltipplier
AO37.1OF	%	±100.00	0.00	0	Analog Out 37.1 OFset
AO37.2OF	%	±100.00	0.00	0	Analog Out 37.2 OFset

ASIGHA0X (225)

Parameter	Unit	Range	OPC	Term.	Parameter full name
EMFPOSV	No unit...	±32767	Not.....	8192	Electro Motive Force POSitive Value

BRDYN0X (251)

Parameter	Unit	Range	OPC	Term.	Parameter full name
BRDYN1S	Log.....	"0","1"	Not.....	"0"	BRake DYNAmic 1 Select
BRDYN2S	Log.....	"0","1"	Not.....	"0"	BRake DYNAmic 2 Select

CONSEL1X (224)

Parameter	Unit	Range	OPC	Term.	Parameter full name
CONLM	Log	"0","1"	"1"	"1"	CONvertor select Locally/Master piece
CONVA	Log	"0","1"	"0"	"0"	select CONVerter A
CONVB	Log	"0","1"	"0"	"0"	select CONVerter B
DRIVSYTE	Log	"0","1"	Not	"0"	DRIVE SYstem TEST

CVREC0X (215)

Parameter	Unit	Range	OPC	Term.	Parameter full name
CVNOFS	No Unit ..	±32767	Not	5	ConVerter Number Of Fault Select
CVTOUTD	msec	0-32767	Not	100	ConVerter Time OUT Delay
LNK37D	msec	0-32767	100	100	LiNK fault 37 Delay

CVTRA0X (295)

Parameter	Unit	Range	OPC	Term.	Parameter full name
FNOD_NO	No Unit ..	0-32767	0	0	Follower Nod_NO(number)

DI310X (208)

Parameter	Unit	Range	OPC	Term.	Parameter full name
ADI31	Log	"0","1"	Not	"0"	Attach Digital In 31
DI31.1IN	Log	"0","1"	Not	"0"	Digital In 31.1 INverse
DI31.2IN	Log	"0","1"	Not	"0"	Digital In 31.2 INverse
DI31.3IN	Log	"0","1"	Not	"0"	Digital In 31.3 INverse
DI31.4IN	Log	"0","1"	Not	"0"	Digital In 31.4 INverse
DI31.5IN	Log	"0","1"	Not	"0"	Digital In 31.5 INverse
DI31.6IN	Log	"0","1"	Not	"0"	Digital In 31.6 INverse
DI31.7IN	Log	"0","1"	Not	"0"	Digital In 31.7 INverse
DI31.8IN	Log	"0","1"	Not	"0"	Digital In 31.8 INverse

DI370X (209)

Parameter	Unit	Range	OPC	Term.	Parameter full name
DI37.1IN	Log	"0","1"	Not	"0"	Digital In 37.1 INverse
DI37.2IN	Log	"0","1"	Not	"0"	Digital In 37.2 INverse
DI37.3IN	Log	"0","1"	Not	"0"	Digital In 37.3 INverse
DI37.4IN	Log	"0","1"	Not	"0"	Digital In 37.4 INverse
DI37.5IN	Log	"0","1"	Not	"0"	Digital In 37.5 INverse
DI37.6IN	Log	"0","1"	Not	"0"	Digital In 37.6 INverse
DI37.7IN	Log	"0","1"	Not	"0"	Digital In 37.7 INverse
DI37.8IN	Log	"0","1"	Not	"0"	Digital In 37.8 INverse

DO320X (283)

Parameter	Unit	Range	OPC	Term.	Parameter full name
ADO32	Log	"0","1"	Not	"0"	Attach Digital Out 32
DO32.1IN	Log	"0","1"	Not	"0"	Digital Out 32.1 INverse
DO32.2IN	Log	"0","1"	Not	"0"	Digital Out 32.2 INverse
DO32.3IN	Log	"0","1"	Not	"0"	Digital Out 32.3 INverse
DO32.4IN	Log	"0","1"	Not	"0"	Digital Out 32.4 INverse
DO32.5IN	Log	"0","1"	Not	"0"	Digital Out 32.5 INverse
DO32.6IN	Log	"0","1"	Not	"0"	Digital In 32.6 INverse
DO32.7IN	Log	"0","1"	Not	"0"	Digital Out 32.7 INverse
DO32.8IN	Log	"0","1"	Not	"0"	Digital Out 32.8 INverse

DO370X (284)

Parameter	Unit	Range	OPC	Term.	Parameter full name
DO37.1IN	Log	"0","1"	Not	"0"	Digital Out 37.1 INverse
DO37.2IN	Log	"0","1"	Not	"0"	Digital Out 37.2 INverse
DO37.3IN	Log	"0","1"	Not	"0"	Digital Out 37.3 INverse
DO37.4IN	Log	"0","1"	Not	"0"	Digital Out 37.4 INverse
DO37.5IN	Log	"0","1"	Not	"0"	Digital Out 37.5 INverse

DSCREC0X (216-219)

Parameter	Unit	Range	OPC	Term.	Parameter full name
DCRNRFILT	No Unit ..	0-32767	Not	5	Drive syst. Com. Receive Number of Fault

DSCTRA0X (288-291)

Parameter	Unit	Range	OPC	Term.	Parameter full name
SCBTOUTD	No Unit ..	0-32767	Not	20	Serial Communication. Broadcast Time OUT Delay
SCCASEL	Log	"0","1"	"0"	"0"	Serial Communication Converter A SElect
SCCBSEL	Log	"0","1"	"0"	"0"	Serial Communication Converter B SElect
SCFEASEL	Log	"0","1"	"0"	"0"	Serial Communication Field Exciter A SElect
SCFEBSEL	Log	"0","1"	"0"	"0"	Serial Communication Field Exciter B SElect

EMFMON1X (239)

Parameter	Unit	Range	OPC	Term.	Parameter full name
ALPHAHL	Deg	0-360	120	10922	ALPHA (thyr. control angle) High Level
ALPHALL	Deg	0-360	50	4550	ALPHA Low Level
ALPHAON	msec	0-32767	Not	5000	ALPHA ON
ARMLVL	%	0.0-400.0	10.0	819	ARMature Low Voltage Level
IAACTL	%	0-400	10	819	IA (motor current) ACTual Level
MOTOVL	%	0-400	10	819	MOTOr OVer voltage Level
NEMFADEL	msec	0-32767	Not	50	No EMF motor A DELay
NEMFBDEL	msec	0-32767	Not	50	No EMF motor B DELay

ETHMDS0X (237)

Parameter	Unit	Range	OPC	Term.	Parameter full name
EARTHCUR	AMP	4-12	4	10922.....	EARTH CURrent.
EARTHTIM.....	msec	0-32767	100.....	100	EARTH fault delay TiMe.

EXFLT3X (232)

Parameter	Unit	Range	OPC	Term.	Parameter full name
EXFLTA1D	sec	0-32767	1	1	EXternal FauLT Analog 1 Delayed
EXFLTA1L.....	%.....	±100.0	100.0.....	32767.....	EXternal FauLT Analog 1 Level
EXFLTD1D	sec	0-32767	1	32767.....	EXternal FauLT Digital 1 Delay
EXFLTD2D	sec	0-32767	1	32767.....	EXternal FauLT Digital 2 Delay
EXFLTD1S	Log	"0","1"	Not.....	"0".....	EXternal FauLT Digital 1 Select
EXFLTD2S	Log	"0","1"	Not.....	"0".....	EXternal FauLT Digital 2 Select

FLTLD0X (296-299)

Parameter	Unit	Range	OPC	Term.	Parameter full name
FCLEAR.....	Log	"0","1"	"0"	"0".....	Fault CLEARing

FSIGHA0X (243.01/243.02)

Parameter	Unit	Range	OPC	Term.	Parameter full name
LUBABS	Log	"0","1"	Not.....	"0".....	LUBrication motor A and B Select
LUBACKDT	sec	0-32767	Not.....	5	LUBrication ACKnowledge Delay Time

HWFMDS0X (230)

Parameter	Unit	Range	OPC	Term.	Parameter full name
LNK32S.....	Log	"0","1"	Not.....	"0".....	LiNK fault 32 Select
LNK35S.....	Log	"0","1"	Not.....	"0".....	LiNK fault 35 Select
LNK37S.....	Log	"0","1"	Not.....	"0".....	LiNK fault 37 Select
LNK40S.....	Log	"0","1"	Not.....	"0".....	LiNK fault 40 Select
LNK40D.....	msec	0-32767	Not.....	32767.....	LiNK fault 40 Delay

IAREFH0X (279)

Parameter	Unit	Range	OPC	Term.	Parameter full name
ADAPTLIM.....	No Unit...	0.0-8.0.....	3.0.....	12287....	ADAPT LIMitation
CURHILEV.....	%.....	0-400.....	20.....	1638.....	CURrent HI LEVel
CURLOLEV.....	%.....	0-400.....	10.....	3277.....	CURrent LO LEVel
HIGHSTEP.....	Log.....	"0","1".....	"0".....	"0".....	HIGH STEP selection
IALIMCHN.....	No Unit...	±32767.....	Not.....	-100.....	IA LIMitation CHange Negative
IALIMCHP.....	No Unit...	±32767.....	Not.....	100.....	IA LIMitation CHange Positive
IALIMMAX.....	%.....	0.0-400.0.....	100.0.....	8192.....	IA LIMitation MAXimum
IALIMNC.....	Log.....	"0","1".....	"0".....	"0".....	IA LIMitation Negative Connect
IALIMNS.....	%.....	±400.0.....	-100.0.....	-8192.....	IA LIMitation Negative Set
IALIMPC.....	Log.....	"0","1".....	"0".....	"0".....	IA LIMitation Positive Connect
IALIMPS.....	%.....	±400.0.....	100.0.....	8192.....	IA LIMitation Positive Set
IAMVTC.....	msec.....	0-32767.....	100.....	100.....	IA Measured Value Time Constant
IAREFCOR.....	No Unit...	0.00-1.00.....	0.00.....	0.....	IA REFERENCE CORrection
IBMAX.....	No Unit...	±32767.....	Not.....	1000.....	I(current) Break Point MAXimum
IBP1.....	No Unit...	±32767.....	Not.....	4000.....	I(current) Break Point 1
IBP2.....	No Unit...	±32767.....	Not.....	3600.....	I(current) Break Point 2
IBP3.....	No Unit...	±32767.....	Not.....	1600.....	I(current) Break Point 3
IGCORRS.....	Log.....	"0","1".....	Not.....	"0".....	I(current) Gain CORrection Select
MFLOADSH.....	No Unit...	0.00-2.00.....	1.00.....	16384....	Master Follower LOAD SHaring
NBP1.....	No Unit...	±32767.....	Not.....	400.....	N(rotation speed) Break Point 1
NBP2.....	No Unit...	±32767.....	Not.....	600.....	N(rotation speed) Break Point 2
NBP3.....	No Unit...	±32767.....	Not.....	900.....	N(rotation speed) Break Point 3
NDPIA.....	Log.....	"0","1".....	Not.....	"0".....	N(rotation speed) Dependent IA limitation
NOFOGAIN.....	No Unit...	0.00-2.00.....	1.00.....	16384....	NO Follower GAIN
SEPGAIN.....	No Unit...	0.00-2.00.....	2.00.....	32767....	SEParate GAIN
TRQTC.....	msec.....	0-32767.....	100.....	100.....	ToRQue Time Constant

MFBRE30X (213/214)

Parameter	Unit	Range	OPC	Term.	Parameter full name
LNK31D.....	msec.....	0-32767.....	Not.....	500.....	LiNK fault 31 Delay time
LNK51D.....	msec.....	0-32767.....	Not.....	500.....	LiNK fault 51 Delay time
MPNOFS.....	No Unit..	0-32767.....	Not.....	5.....	Multi Protocol Number Of Faults Select
MPTOUTD.....	msec.....	0-32767.....	Not.....	600.....	Multi Protocol Time OUT Delay
UNIT_NO.....	No Unit..	0-32767.....	100.....	100.....	UNIT_NO(number)

MFINT10X (264)

Parameter	Unit	Range	OPC	Term.	Parameter full name
LINKSTOP.....	Log.....	"0","1".....	Not.....	"1".....	LINK STOP
REFT.....	msec.....	0-32767.....	Not.....	300.....	ready for REFERENCE Time
SEPMSEL.....	Log.....	"0","1".....	Not.....	"0".....	SEParate Mode SELEct
SEPMO_N.....	Log.....	"0","1".....	Not.....	"0".....	SEParate Mode_Negative
SLAVEI.....	Log.....	"0","1".....	"1".....	"1".....	SLAVE Interlock
TMMODES.....	Log.....	"0","1".....	Not.....	"0".....	Tandem Mill MODE Select

MOTEM11X (236)

Parameter	Unit	Range	OPC	Term.	Parameter full name
CAHTL	Deg	0-150	Not	5	Cooling Air High Temperature Level
CAOTL	Deg	0-150	35	7645	Cooling Air Over Temperature Level
MBHTL	Deg	0-150	Not	10	Motor Bearing High Temperature Level
MBOTL	Deg	0-150	90	19660	Motor Bearing Over Temperature Level
MWHTL	Deg	0-150	Not	10	Motor Winding High Temperature Level
MWOTL	Deg	0-150	90	19660	Motor Winding Over Temperature Level

MOTOL11X (235)

Parameter	Unit	Range	OPC	Term.	Parameter full name
ARMHLD	sec	0-32767	30	30	ARMature High Level time Delay
ARMHLL	%	0-200	90	14745	ARMature High Load Level
ARMOLL	%	0-32767	Not	8192	ARMature Over Load Level
IATEST	%	0-400	0	0	I(current) Armature TESTING
MOTCURM	%	100-400	200	16384	MOTor CURrent Maximum
MOTORTC	sec	1-32767	300	300	MOTOR Time Constant
SRETIME	Log	"0","1"	"0"	"0"	Set REcovery TIME

NCTR23X (277)

Parameter	Unit	Range	OPC	Term.	Parameter full name
ADAPTLOC	no unit ...	0.00-128.00	1.00	256	ADAPT LOCal
ADAPTMAX	no unit ...	0.10-128.00	20.00	5120	ADAPT MAXimum
ADAPTSEL	Log	"0","1"	"0"	"0"	ADAPT SELECTION
COMP	%	0.0-100.0	0.0	0	COMPOunding
NDERKD	no unit ...	0.0-128.0	0.0	0	N (speed) feed back DERivation
NGAIN	no unit ...	0.0-256.0	1.0	128	N (speed) GAIN
NKSI0	no unit ...	0.00-0.50	0.00	0	Damping factor
NLAG	no unit ...	0.10-128.00	1.00	256	N (speed) LAG
NMODE	no unit ...	0-32767	0	0	N (speed) MODE
NPROP	Log	"0","1"	"1"	"1"	N (speed) PROPortional
NREF1S	Log	"0","1"	"1"	"1"	N (speed) REFERENCE 1 Select
NREF2S	Log	"0","1"	"1"	"1"	N (speed) REFERENCE 2 Select
NREF3S	Log	"0","1"	"0"	"0"	N (speed) REFERENCE 3 Select
NTC1	sec	0.00-8.12	8.12	32767	N (speed) Time Constant 1
NTC2	msec	0.0-3276.7	0.0	0	N (speed) Time Constant 2
NTC3	msec	3.2-3276.7	3.2	32	N (speed) Time Constant 3
TQREFTMS	Log	"0","1"	"0"	"0"	TorQue REFERENCE Tandem Mill Select

NRAMP30X**(272)**

Parameter	Unit	Range	OPC	Term.	Parameter full name
EMRATE	sec	0.00-65.53	5.00	2500	EMergency stop RATE
LPOSRATE	sec	0.00-65.53	1.00	500	Local POSitioning RATE
LSPRATE	sec	0.00-65.53	15.00	7500	Local SPeed RATE
LVARSLS	Log	"0","1"	"1"	"1"	Local VARiable SLOpe Select
NREFOLH	%	0-32767	Not	164	N(speed) REFerence FOLlower High level
RACCTC	msec	0-32767	5	5	Ramp ACCeleration Time Constant
RACCTD	msec	0-32767	10	10	Ramp ACCeleration Time Delay
RATETD	msec	0-32767	15	15	RATE Time Delay
SHEARS	Log	"0","1"	"0"	"0"	SHEAR Select
SPMIN	%	0.00-100.00	100.00	32767	SPeed MINimum
TRMIN	sec	0.00-65.53	0.50	250	Time Ramp MINimum
TSM	msec	0-32767	100	100	Time Sample Master control

ORDERH0X**(263)**

Parameter	Unit	Range	OPC	Term.	Parameter full name
FLDEXCS	Log	"0","1"	"0"	"0"	FieLD EXCiter Select
MSOFFDEL	msec	0-32767	Not	250	Main Supply OFF Delay

POSCT0X**(265.01/265.02)**

Parameter	Unit	Range	OPC	Term.	Parameter full name
BUSREFS	Log	"0","1"	"1"	"1"	BUS REFerence Select
ESYNCSP	Log	"0","1"	"1"	"1"	External SYNChronizing SPeed
INPOSL	No Unit ..	0-32767	25	25	IN POSition Level
INPOSTD	msec	0-32767	100	100	IN POSition level Time Delay
LPGAIN	No Unit ..	0.10-128.00	1.00	128	Local Positioning GAIN
LPOSSP	%	0.00-100.00	100.00	32767	Local POSitioning SPeed
LSYNCV	No Unit ..	0-32767	0	0	Local SYNChronizing Value
MFLAG	Log	"0","1"	"0"	"0"	Master FLAG
PGAIN	No Unit ..	0.10-128.00	1.00	256	Positioning GAIN
PLVL1	No Unit ..	0-32767	32767	32767	Positioning LeVeL 1
PLVL2	No Unit ..	0-32767	32767	32767	Positioning LeVeL 2
PMVSCALE	No Unit ..	0-32767	1	1	Positioning Mean Value SCALE
PPUF	No Unit ..	0.000-0.999	0	0	Pulses Per Unit Fraction
PPUI	No Unit ..	0-32767	1	1	Pulses Per Unit Integer
PRESETV	No Unit ..	0-32767	0	0	PRESET Value
PREF1	No Unit ..	0-32767	0	0	Positioning REFerence 1
PREF2	No Unit ..	0-32767	0	0	Positioning REFerence 2
PREF3	No Unit ..	0-32767	0	0	Positioning REFerence 3
RSPSEL	Log	"0","1"	"1"	"1"	Remote SPeed SElect
RTIMESPC	msec	0-32767	100	100	Rise TIME SPeed Controller

REVFWD0X (278)

Parameter	Unit	Range	OPC	Term.	Parameter full name
FFWD.....	Log	"0","1"	"1"	"1"	Force ForWard Direction
FLDCHIN1.....	msec	0-32767	Not	8000	Field CHange INtegration time 1
IFHYST.....	%	0.0-400.0	10.0	819	IF (excitation current) HYSTeresis
IFMAX.....	%	0.0-400.0	Not	8192	IF (excitation current) MAXimum
IFRGAIN.....	No Unit	0.00-32.00	4.00	4095	IF (excitation current) Reversing GAIN
OPTITORQ.....	Log	"0","1"	"0"	"0"	OPTImal TORQue
TQREHYST.....	%	0.0-400.0	6.0	491	TorQue REference HYSTeresis

RUNDSC0X (231)

Parameter	Unit	Range	OPC	Term.	Parameter full name
CPUMOTM.....	msec	50-32767	1000	1000	CPU MONitoring TiMe
ENSTALMP.....	Log	"0","1"	"1"	"1"	ENable STALI supervision of MasterPiece
ESTALCSA.....	Log	"0","1"	Not	"1"	Enable STALI supervision of Converter System A
ESTALCSB.....	Log	"0","1"	Not	"1"	Enable STALI supervision of Converter System B
ESTALFEA.....	Log	"0","1"	Not	"1"	Enable STALI supervision of Field Exciter A
ESTALFEB.....	Log	"0","1"	Not	"1"	Enable STALI supervision of Field Exciter B
MODELCS.....	No Unit	0-32767	Not	"1"	MONitoring DELay of Converter System
MODELFE.....	No Unit	0-32767	Not	"1"	MO nitoring DELay of Field Exciter

SEQCTR0X (257)

Parameter	Unit	Range	OPC	Term.	Parameter full name
BRMCS.....	Log	"0","1"	Not	"0"	BRake MECHanical Select
OFFRESET.....	Log	"0","1"	Not	"0"	OFF RESET
ONHOLDT.....	msec	0-32767	Not	1500	ON HOLD Time
SCLOC2S.....	Log	"0","1"	"1"	"1"	Sequence Control LOCAl 2 Select
MCONTOFD.....	msec	T4-32767	Not	324	Maim CONtactor OFF Delay
SEQMODE.....	No Unit	0-32767	Not	3	SEQUence MODE
TFLDON.....	msec	0-32767	Not	5000	Time Field exciter ON

SEQH10X (248.01/248.02)

Parameter	Unit	Range	OPC	Term.	Parameter full name
BUSFLTS.....	Log	"0","1"	"1"	"1"	BUS FauLT off Select
BUSSEL.....	Log	"0","1"	"0"	"0"	BUS Select
CBONINTR.....	Log	"0","1"	"0"	"0"	Circuit Breaker ON order INTeRnally
EMOFFTD.....	sec	0-32767	5	5	EMERgency OFF Time Delay
FASTSTOS.....	Log	"0","1"	Not	"1"	FAST STOp Select
FLDHEATS.....	Log	"0","1"	"0"	"0"	Field HEAT Select
IFREDSEL.....	Log	"0","1"	"0"	"0"	I(current) Field REDuction Select
INTLS.....	Log	"0","1"	"0"	"0"	INTeRlocking of Local start Select
JOG0STS.....	Log	"0","1"	Not	"0"	JOG 0(zero speed) STOp Select
LPOSON.....	Log	"0","1"	"0"	"0"	Local POSitioning ON
TPOFFSEL.....	Log	"0","1"	Not	"0"	TriP OFF Select
TPOFFTIM.....	sec	0-32767	Not	0	TriP OFF TIME delay

SEQMO10X**(238.01/238.02)**

Parameter	Unit	Range	OPC	Term.	Parameter full name
ACKOFD01	msec	0-32767	Not	0	ACKnowledge OFF Delay 01
ACKOFD03	msec	0-32767	Not	0	ACKnowledge OFF Delay 03
ACKOFD05	msec	0-32767	Not	0	ACKnowledge OFF Delay 05
ACKOFD07	msec	0-32767	Not	0	ACKnowledge OFF Delay 07
APREDEL	msec	0-32767	Not	1000	Air PRESSure DELay Time
DCBKACKT	msec	0-32767	Not	5000	DC Breaker ACKnowledge Time
FANACKT	msec	0-32767	Not	500	FAN ACKnowledge Time
FANSAONS	Log	"0","1"	Not	1	FANS A ON Select
IFACTIM	msec	0-32767	Not	5000	IF (excitation current) ACKnowledge TIME
MCONACKT	msec	0-32767	Not	5000	Main CONTACTor ACKnowledge Time
OILPUMPS	Log	"0","1"	Not	0	OIL PUMP Select
OPFACKT	msec	0-32767	Not	5000	Oil Pump Fault ACKnowledge Time
PRSWSEL	Log	"0","1"	Not	0	PRESSure SWITCH SElect

SEQST0X**(249)**

Parameter	Unit	Range	OPC	Term.	Parameter full name
N0INLKS	Log	"0","1"	Not	"0"	N0(zero speed) INterLock Select
N0STOPS	Log	"0","1"	Not	"0"	N0(zero speed) STOP Select

SIGHDI0X (256)

Parameter	Unit	Range	OPC	Term.	Parameter full name
AIPOSS.....	Log	"0","1"	Not	"0"	Analog Input POSitioning Select
AIREFS.....	Log	"0","1"	Not	"0"	Analog Input REFERENCE Select
AISTARTS.....	Log	"0","1"	Not	"0"	Analog Input START Select
CHOFFDEL.....	msec	0-32767	Not	0	CHange OFF DELay
CORESET.....	Log	"0","1"	Not	"0"	Change Off RESET

SPMEAS0X (223)

Parameter	Unit	Range	OPC	Term.	Parameter full name
ADIGSP.....	Log	"0","1"	Not	"1"	Attach DIGital SPeed measuring
EXTSYNCS.....	Log	"0","1"	Not	"0"	EXTernal SYNChronization Select
NACTADJ.....	No Unit	1.050-4.000	4.000	32767	N(rotation speed) ACTual ADJusment
NACTMVTC.....	msec	0-32767	30	30	N(rot. sp.)ACTual Mean Value
NACTTC.....	msec	0-32767	10	10	N(rot. sp.) ACTual Time Constant
SYNCCOND.....	No Unit	±32767	Not	5	SYNCronization CONDition

SPMON1X (233)

Parameter	Unit	Range	OPC	Term.	Parameter full name
ALPHANSP.....	Deg	0-360	50	4550	ALPHA (thyr. control angle) No SPeed
MOTHSPL.....	%	0-100	90	29490	MOTor High SPeed Level
MOTNSPL.....	%	0-100	5	1638	MOTor No SPeed Level
MOTOSPL.....	%	0-200	115	18841	MOTor Over SPeed Level
MOTSP1L.....	%	0-100	10	3276	MOTor SPeed 1 Level
N0TIME.....	msec	0-32767	100	100	N0 (zero speed) TIME
NGTNOL.....	%	0.0-100.0	1.0	327	N Greater Than N0 (zero speed) Level
NSPTIME.....	msec	0-32767	200	200	No SPeed TIME

STALLM0X (234)

Parameter	Unit	Range	OPC	Term.	Parameter full name
STALLIAL.....	%	0-400	50	4096	STALL I(current) Armature Level
STALLSPL.....	%	0.0-100.0	2.0	328	STALL SPeed Level
STALLTD.....	sec	0.0-32.7	3.0	3006	STALL Time Delay

STRTDS1X (207)

Parameter	Unit	Range	OPC	Term.	Parameter full name
DCBRS	Log.....	"0","1"	"1"	"1"	DC BReaker Select
EMFNOM	VOLT	0-32767	0	0	EMF (voltage) NOMinal
FOLLOW1S	Log.....	"0","1"	"0"	"0"	FOLLOWer 1 Select
IANOM	AMP	0-32767	1000	1000	IA (motor current) NOMinal
IFNOM	AMP	0.0-3276.7	100.0	1000	IF (motor excitation current) NOMinal
NBASE	RPM.....	0-32767	100	100	N (rotary speed) BASE value
NBREDGES	No Unit..	0-32767	4	4	NumBeR of EDGES
NBRPPR	No Unit..	0-32767	1024	1024	NumBeR of Pulses Per Revolution
NMAX	RPM.....	0-32767	100	100	N (rotary speed) MAXimum
ONEFLEX	Log.....	"0","1"	"1"	"1"	ONE FieLd EXciter
SEL12PP	Log.....	"0","1"	"0"	"0"	SELEct 12 Pulse Parallel
SECTTYPE	No Unit..	0-32767	"0"	"0"	SECTion TYPE
TWINDRIV	Log.....	"0","1"	"0"	"0"	TWIN DRIVe
UANOM	VOLT	0-32767	1000	1000	UA (motor voltage) NOMinal

TEST30X (206)

Parameter	Unit	Range	OPC	Term.	Parameter full name
AOTEST	%	±100.0	0	0	Analog Aoutput TEST
ATRIGL	%	0.00-100.00	100.00.....	32767	Analog TRIG signal Level
DERTRIGL	%	0.00-100.00	100.00.....	32767	DERivative TRIG Level
DOTEST	Log.....	"0","1"	"0"	"0"	Digital Output TEST

TESTDS0X (227)

Parameter	Unit	Range	OPC	Term.	Parameter full name
BLKRESAR	Log.....	"0","1"	Not.....	"0"	BLocK RESet when Automatic Restart
MAXOUT	%	±100.0	100.0	32767	MAXimum OUTput of test ramp
MINOUT	%	±100.0	-100.0	-32767 ...	MINimum OUTput of test ramp
RAMPTIME	sec	0.0-3276.7	10.0	100	test RAMP TIME
TIMESLOW	sec	0-32767	0	0	test ramp TIME SLOW
TEST	Log.....	"0","1"	"0"	"0"	TEST mode enable
TESTMODE	No Unit..	0-32767	0	0	TEST MODE select
TREFLEV	No Unit..	±32767	Not.....	0	Test REFerence high LEVEL

TQLST10X (276)

Parameter	Unit	Range	OPC	Term.	Parameter full name
NTQRLIMS	Log.....	"0","1"	Not.....	"1"	No TorQue LIMit Select
TQSTRATE	msec	0-32767	Not.....	200	TorQue Step RATE

TRPDS0X

(245.01/245.02)

Parameter	Unit	Range	OPC	Term.	Parameter full name
AOCTRP2S.....	Log	"0","1"	Not	"0"	Armature OverCurrent TRiP 2 Select
AOLTRP3S.....	Log	"0","1"	Not	"1"	Armature OverLoad TRiP 3 Select
ARMNEMFS.....	Log	"0","1"	Not	"1"	ARMature No EMF trip Select
ARMOLS.....	Log	"0","1"	"1"	"1"	ARMature OverLoad Select
ASUVS.....	Log	"0","1"	Not	"1"	Auxiliary Supply UnderVoltage Select
DCBRFS.....	Log	"0","1"	Not	"1"	DC BReaker Fault trip Select
DSCLNKS.....	Log	"0","1"	Not	"1"	Drive Serial Communication LiNK fault Select
EFACSEL.....	Log	"0","1"	Not	"1"	Earth Fault AC SElect
EFDCSEL.....	Log	"0","1"	Not	"0"	Earth Fault DC SElect
EFSEL.....	Log	"0","1"	Not	"0"	Earth Fault SElect
FLDEFLTS.....	Log	"0","1"	Not	"0"	Field Earth FauLT Select
FLDLCS.....	Log	"0","1"	Not	"1"	Field Low Current Select
MCONTFS.....	Log	"0","1"	Not	"1"	Main CONTactor Fault Select
MOTOTS.....	Log	"0","1"	Not	"1"	MOTor OverTemperature Select
NSPFBACS.....	Log	"0","1"	Not	"1"	No SPeedFeedBACK Select
REMSTOR.....	Log	"0","1"	Not	"0"	REMOte Select Trip OverRIDE
TPWARDEL.....	sec	0-32767	0	0	TriP WARning DELeay time
TPWTOS.....	Log	"0","1"	Not	"1"	TriP Warning TimeOut Select
TQFLTPS.....	Log	"0","1"	Not	"1"	TorQue FauLt TriP Select

List of signals

Following is a list of all signals in program DSRB01XX. The signals are listed in the module where they are created as an output signal.

How to read the table:

Signal	Ts	Unit	Range	OPC	Signal full name	To module (Ts)
1).....	2) .3)	4).....	5) ...	6)	7)	

1) Name of the signal.

2) Sample time level.

* Stands for signals that can be connected to user defined input channels with different sample times.

3) Unit for signal. Engineering units.

4) Range for signal.

5) Signals available on the operator's panel (all are available on terminal).

6) Signal name without abbreviation.

7) A reference to which module the output signal goes. In parenthesis the sample time.

ACCC10X (273)

Signal	Ts	Unit	Range	OPC	Signal full name
ACCC1.....	T2	%.....	±400.0.....	X	ACCeleration Compensation 1
ADAPT.....	T2	%.....	±128.00.....	X	ADAPTation
NREF3.....	T2	%.....	±100.00.....	X	N(rotational speed) REFerence 3

ACKHA2X (229)

Signal	Ts	Unit	Range	OPC	Signal full name
ACKDCBR.....	T4	Log	"0","1"		ACKnowledge DC BReaker
ACKFANS	T4	Log	"0","1"	X	ACKnowledge FANS
ACKMCONT.....	T4	Log	"0","1"		ACKnowledge Main CONTactor
FLDCH	T2	Log	"0","1"		FieLD CHange
IFREVACK	T1	Log	"0","1"		IF (field current) REVERSE ACKnowledge
INTHAOK.....	T4	Log	"0","1"		INItialization HAndling OK
NREFFOLL	T2	Log	"0","1"		N (speed) REFerence FOLLow
RDYFLD.....	T4	Log	"0","1"		ReaDY FieLD
RDYFLDA	T4	Log	"0","1"	X	ReaDY FieLD A
RDYFLDB	T4	Log	"0","1"	X	ReaDY FieLD B
RDYREFCS	T1	Log	"0","1"	X	ReaDY for REFerence Convertor System

AO370X (287)

Signal	Ts	Unit	Range	OPC	Signal full name
AO37.T1.....	T1	No unit.....	±32767.....		Analog Out 37.T1
AO37.T2.....	T2	No unit.....	±32767.....		Analog Out 37.T2

ASIGHA0X (225)

Signal	Ts	Unit	Range	OPC	Signal full name
ALPHA	T2.....	Deg.....	0.0-360.0	X	ALPHA thyristor trigger pulse control angle
AMBTMP	T4.....	Deg.....	0.0-3276.7		AMBIent TEMPerature
EMFACTMM.....	T2.....	%.....	±400.0	X	Electro Motive Force ACTual Max. or Min.
EMFCALC	T2.....	%.....	±400.0	X	Electro Motive Force CALCulated
EMFCORR.....	T1.....	%.....	0.0-200.0		Electro Motive Force CORRection factor
EMFVOLT	T4.....	VOLT.....	±32767	X	Electro Motive Force VOLTage
EMFPOS	T1.....	Log	"0","1"		Electro Motive Force POSitive
FLUXREF.....	T2.....	%.....	0.0-200.0	X	FLUX (magnetic flow) REFErence
IAACT	T3.....	%.....	±400.0	X	IA (motor current) ACTual value
IAACTAAB	T3.....	%.....	±400.0		IA (motor current) A ABSolute value
IAACTABS	T3.....	%.....	±400.0		IA (motor current) ACTual ABSolute value
IAACTBAB	T3.....	%.....	±400.0		IA (motor current) B ABSolute value
IABRLE2	T1.....	%.....	0.0-400.0		IA (motor current) BRake LEvel control quadrant 2
IABRLE4	T1.....	%.....	0.0-400.0		IA (motor current) BRake LEvel control quadrant 4
IFACT.....	T4.....	%.....	±400.0	X	IF (field current) ACTual value
PHIREF.....	T1.....	%.....	0.0-200.0		PHI (magnetic flow) REFErence
THYTEMP	T4.....	Deg.....	0.0-3276.7		THyristor TEMPerature
UDI0.....	T2.....	%.....	0.0-400.0	X	U (voltage) Direct at 0-load

BRDYN0X (251)

Signal	Ts	Unit	Range	OPC	Signal full name
DYNBR.....	T4.....	Log	"0","1"	X	DYNamic BRaking
DYNBR1.....	T4.....	Log	"0","1"	X	DYNamic BRaking 1

CONNRBOX (204)

Signal	Unit	Range	OPC	Signal full name	To module
ACBRAFLT.....	Log	"0","1"	X	AC BReaker A FauLT	FSIGHA
ACBRBFLT.....	Log	"0","1"	X	AC BReaker B FauLT	FSIGHA
ACBROFF	Log	"0","1"		AC BReaker OFF	ORDERH
ACCONDI.....	Log	"0","1"		ACCeleration ON Digital Input.....	SIGHDI
ACKDCBRA	Log	"0","1"	X	ACKnowledgement DC BReaker A	ACKHA,SEQMO1
ACKDCBRB	Log	"0","1"	X	ACKnowledgement DC BReaker B	ACKHA,SEQMO1
ACKDYNBR	Log	"0","1"	X	ACKnowledgement DYNnamic BRaking.....	BRDYN
ACKLUBA.....	Log	"0","1"	X	ACKnowledgement LUBrication A	FSIGHA
ACKLUBB.....	Log	"0","1"	X	ACKnowledgement LUBrication B	FSIGHA
ACKOPON	Log	"0","1"	X	ACKnowledgement Oil Pump ON.....	SEQMO1
AIPREF	%.....	±100.00 ..	X	Analog Input Positioning REFErence.....	POSCT
AIPREFON.....	Log	"0","1"	X	Analog Input Positioning REFErence ON.....	POSCT
AISPREF.....	%.....	±100.00 ..	X	Analog Input SPeed REFErence	POSCT,NREFH1
APREINDA.....	Log	"0","1"	X	Air PREssure INDication A.....	SEQMO1
APREINDB.....	Log	"0","1"	X	Air PREssure INDication B.....	SEQMO1
BA1PT100.....	VOLT.....	0-1.000 ..	X	motor Bearing A1 PT100.....	MOTEM1
BA2PT100.....	VOLT.....	0-1.000 ..	X	motor Bearing A2 PT100.....	MOTEM1

CONNRB0X Cont.

BB1PT100.....	VOLT	0-1.000	X	motor Bearing B1 PT100	MOTEM1
BB2PT100.....	VOLT	0-1.000	X	motor Bearing B2 PT100	MOTEM1
BLOCK.....	Log	"0","1"	X	BLOCKing	MFBTR3
CA1PT100.....	VOLT	0-1.000	X	motor Cooling Air 1 PT100	MOTEM1
CA2PT100.....	VOLT	0-1.000	X	motor Cooling Air 2 PT100	MOTEM1
COOLFLT1.....	Log	"0","1"	X	COOLing FauLT 1	SEQMO1,FLTLDs
COOLFLT2.....	Log	"0","1"	X	COOLing FauLT 1	SEQMO1,FLTLDs
COOLFLT3.....	Log	"0","1"	X	COOLing FauLT 1	SEQMO1,FLTLDs
COOLFLT4.....	Log	"0","1"	X	COOLing FauLT 1	SEQMO1,FLTLDs
COOLFLT5.....	Log	"0","1"	X	COOLing FauLT 1	SEQMO1,FLTLDs
DCBRAFLT	Log	"0","1"	X	DC BReAker A FauLT	FSIGHA,FLTLDs
DCBRBFLT	Log	"0","1"	X	DC BReAker B FauLT	FSIGHA,FLTLDs
DCBRTRPA	Log	"0","1"	X	DC BReAker TRiPped A	FSIGHA
DCBRTRPB	Log	"0","1"	X	DC BReAker TRiPped B	FSIGHA
DECRLOC.....	Log	"0","1"	X	DECRease LOCAl	TESTDS
DYNBRON	Log	"0","1"	X	DYNAmic BReake ON	BRDYN
EACCONDI	Log	"0","1"		External ACCeleration ON Digital Input	SIGHDI
ELDISCMP	Log	"0","1"	X	ELEctrical DISconnect MasterPiece	FSIGHA
EMFACT1	%	±400.0	X	EMF ACTuala 1	EMFMON
EMON	Log	"0","1"	X	EMergency ON	SEQCTR
ESTARTDI	Log	"0","1"		External START Digital Input	SIGHDI
ESTOP.....	Log	"0","1"	X	Emergency STOP	SEQH1
EXFLTA1	%	±100.00	X	EXternal FauLT Analog input 1	EXFLT
EXFLTD1	Log	"0","1"	X	EXternal FauLT Digital input 1	EXFLT,MFBTR3
EXFLTD2	Log	"0","1"	X	EXternal FauLT Digital input 2	EXFLT,MFBTR3
EXMOTOSP	Log	"0","1"	X	EXternal MOTor Over SPeed	SPMON
FASTSTIO	Log	"0","1"	X	FAST STOp I/O	SEQH1
FBLOCK1.....	Log	"0","1"	X	Forced BLOCK 1	NCTR2
FCFLDFWD	Log	"0","1"	X	ForCed FieLD ForWarD	REVFWD
FCFLDREV	Log	"0","1"	X	ForCed FieLD REVerse	REVFWD
FLDHEAT1.....	Log	"0","1"	X	FieLD HEAT 1	SEQH1
HINERTIA	Log	"0","1"	X	High INERTIA	ACCC1
HOMEDI.....	Log	"0","1"	X	HOME Digital Input	POSCT
IALCHSDI.....	Log	"0","1"		I Armature Limit CHange Set Digital Input	SIGHDI
IASIGNSW	Log	"0","1"	X	I A(armature current) SIGN SWitch	IAREFH
IGAINCOR	No unit	0.00-2.00	X	I(current) GAIN CORrection	IAREFH
INCRLOC.....	Log	"0","1"	X	INCRease LOCAl	TESTDS
INDEREMS	Log	"0","1"	X	INcrease DEcrease REMote Select	NREFH1
INLKRESA	Log	"0","1"	X	INterLock RESet A	SEQST
INLKRESB	Log	"0","1"	X	INterLock RESet B	SEQST
INLKRESC	Log	"0","1"	X	INterLock RESet C	SEQST
LOC_EMM	Log	"0","1"	X	LOCAl EMergency Mode	HWFMDS,NCTR2
LOCAL2	Log	"0","1"	X	LOCAL 2	SEQH1,SEQCTR
LOCM_N	Log	"0","1"	X	LOCAL Mode Not	NCTR2
LOCSTART	Log	"0","1"	X	LOCAl START	NCTR2
LOSSAVE1	Log	"0","1"	X	LOSs Saving	SEQH1
LOSSC1.....	%	0.0-100.0	X	LOSS Compensation 1	NCTR2

CONNRBOX Cont.

LOSSC2	.....	%	.....	0.0-100.0	X	.....	LOSS Compensation 2	.....	NCTR2
MCAHT	.....	Log	.....	"0","1"	X	.....	Motor Cooling Air High Temperature	.....	MOTEM1
MCAOT	.....	Log	.....	"0","1"	X	.....	Motor Cooling Air Over Temperature	.....	MOTEM1
MCONTINT	.....	Log	.....	"0","1"	X	.....	Motor COOLing INTerlocked	.....	SEQH1,SEQCTR
MOABHT	.....	Log	.....	"0","1"	X	.....	MOtor A Bearing High Temperature	.....	MOTEM1
MOABOT	.....	Log	.....	"0","1"	X	.....	MOtor A Bearing Over Temperature	.....	MOTEM1
MOALUBFT	.....	Log	.....	"0","1"	X	.....	MOtor A LUBrication FauLT	.....	FSIGHA
MOAWHT	.....	Log	.....	"0","1"	X	.....	MOtor A Winding High Temperature	.....	MOTEM1
MOAWOT	.....	Log	.....	"0","1"	X	.....	MOtor A Winding Over Temperature	.....	MOTEM1
MOBBHT	.....	Log	.....	"0","1"	X	.....	MOtor B Bearing High Temperature	.....	MOTEM1
MOBBOT	.....	Log	.....	"0","1"	X	.....	MOtor B Bearing Over Temperature	.....	MOTEM1
MOBLUBFT	.....	Log	.....	"0","1"	X	.....	MOtor B LUBrication FauLT	.....	FSIGHA
MOBWHT	.....	Log	.....	"0","1"	X	.....	MOtor B Winding High Temperature	.....	MOTEM1
MOBWOT	.....	Log	.....	"0","1"	X	.....	MOtor B Winding Over Temperature	.....	MOTEM1
MOGENFLT	.....	Log	.....	"0","1"	X	.....	MOtor GENeral FauLT	.....	TRPDS,MFBTR3,
MOT1OV	.....	Log	.....	"0","1"	X	.....	MOTor 1 Over Voltage	.....	FSIGHA
MOT2OV	.....	Log	.....	"0","1"	X	.....	MOTor 2 Over Voltage	.....	FSIGHA
MOTOLA	.....	Log	.....	"0","1"	X	.....	MOTor Over Load A	.....	FSIGHA
MOTOLB	.....	Log	.....	"0","1"	X	.....	MOTor Over Load B	.....	FSIGHA
MSUVBLK	.....	Log	.....	"0","1"	X	.....	Main Supply Under Voltage BLocKed	.....	ORDERH
NFEEDBTG	.....	RPM	.....	0-32767	X	.....	N(speed) FEEDBack Tacho Generator	.....	SPMEAS
NONINLK	.....	Log	.....	"0","1"	X	.....	N0(no speed) INTerLock	.....	SEQST
NREF4	.....	%	.....	0.0-100.0	X	.....	N(speed) REFerence 4	.....	NCTR2
OFF10	.....	Log	.....	"0","1"	X	.....	OFF10	.....	SEQH1,MFBTR3
OFF2	.....	Log	.....	"0","1"	X	.....	OFF2	.....	SEQCTR
ON10	.....	Log	.....	"0","1"	X	.....	ON10	.....	SEQH1
ON2	.....	Log	.....	"0","1"	X	.....	ON2	.....	SEQCTR
OPTTORQ	.....	Log	.....	"0","1"	X	.....	OPTImal TORQue	.....	REVFWD
PHOLDDI	.....	Log	.....	"0","1"	X	.....	Positioning HOLD Digital Input	.....	POSCT
POS1DI	.....	Log	.....	"0","1"	X	.....	POSitioning 1 Digital Input	.....	POSCT
POS2DI	.....	Log	.....	"0","1"	X	.....	POSitioning 2 Digital Input	.....	POSCT
POS3DI	.....	Log	.....	"0","1"	X	.....	POSitioning 3 Digital Input	.....	POSCT
POSACTF	.....	No unit	.....	$\pm 2^{31}$	.....	.....	POSitioning ACTual Follower	.....	POSCT
POSSIOR	.....	Log	.....	"0","1"	X	.....	POSitioning I/O Remote	.....	SEQH1
PRAMPSDI	.....	Log	.....	"0","1"	.....	.....	Position RAMP Select Digital Input	.....	SIGHDI
PTSIGNSW	.....	Log	.....	"0","1"	X	.....	Pulse Transmitter SIGN SWitch	.....	SPMEAS
REMOTE2	.....	Log	.....	"0","1"	X	.....	REMOTE 2	.....	SEQH1
REOFF	.....	Log	.....	"0","1"	X	.....	REstart OFF	.....	SEQCTR
REON	.....	Log	.....	"0","1"	X	.....	REstart ON	.....	ACKHA,SEQCTR
RERESET	.....	Log	.....	"0","1"	X	.....	REstart RESET	.....	SEQCTR
RESTART1	.....	Log	.....	"0","1"	X	.....	RESTART 1	.....	SEQST
SEPARATE	.....	Log	.....	"0","1"	X	.....	SEPARATE mode	.....	MFINT1
SEPMOD_N	.....	Log	.....	"0","1"	X	.....	SEPARATE MODE Not	.....	MFINT1
SPCORRON	.....	Log	.....	"0","1"	X	.....	SPEed CORRection ON	.....	NREFH1
START2A	.....	Log	.....	"0","1"	X	.....	START 2A	.....	SEQST

CONNRB0X Cont.

START2C.....Log.....	"0","1".....X.....	START 2C.....	SEQST
STARTIOR.....Log.....	"0","1".....X.....	START I/O Remote.....	SEQH1
STARTLOC.....Log.....	"0","1".....X.....	START LOCAl.....	SEQH1
STOPLOC.....Log.....	"0","1".....X.....	STOP LOCAl.....	SEQH1
TESTREF1.....%	±100.00...X.....	TEST REFERENCE 1.....	TESTDS
TQFLT1.....Log.....	"0","1".....X.....	TorQue FauLT 1.....	TRPDS,FLTLDs
TQRLIMN.....%	0.0-400.0..X.....	TorQue LIMItation Negative.....	TQLST1
TQRLIMP.....%	0.0-400.0..X.....	TorQue LIMItation Positive.....	TQLST1
TRIP1EX.....Log.....	"0","1".....X.....	TRIP 1 EXternal.....	TRPDS,FLTLDs
TRIP2EX.....Log.....	"0","1".....	TRIP 2 EXternal.....	TRPDS,FLTLDs
TRIP3EX.....Log.....	"0","1".....X.....	TRIP 3 EXternal.....	TRPDS,FLTLDs
WA1PT100.....VOLT ...	1.000.....X.....	motor Winding A1 PT100.....	MOTEM1
WA2PT100.....VOLT ...	1.000.....X.....	motor Winding A2 PT100.....	MOTEM1
WB1PT100.....VOLT ...	1.000.....X.....	motor Bearing B1 PT100.....	MOTEM1
WB2PT100.....VOLT ...	1.000.....X.....	motor Bearing B2 PT100.....	MOTEM1

CONSEL1X (224)

Signal	Ts	Unit	Range	OPC	Signal full name
CONVASEL.....T4	Log.....	"0","1".....	X.....	CONVerter A SElected	
CONVBSEL.....T4	Log.....	"0","1".....	X.....	CONVerter B SElected	
CONVSEL.....T4	Log.....	"0","1".....		CONVerter SElected	
NCONVSEL.....T4	Log.....	"0","1".....		No CONVerter SElected	

CVREC0X (215)

Signal	Ts	Unit	Range	OPC	Signal full name
COMMOK	T4	Log.....	"0","1".....		COMMunication OK
CONVF1OK	T3	Log.....	"0","1".....		CONVerter Follower 1 OK
IARLIMFO	T3	Log.....	"0","1".....		I(current) Armature Reference LIMItation Follower
LNK32	T3	Log.....	"0","1".....		LiNK fault 32
LNK37	T3	Log.....	"0","1".....		LiNK fault 37
LNK52	T1	Log.....	"0","1".....		LiNK fault 52
LNKFLTCV	T4	Log.....	"0","1".....	X.....	LiNK FauLT ConVerter
MRDYREF	T3	Log.....	"0","1".....	X.....	Master is ReaDY for REFERENCE
TQREF1	T1	%.....	±400.0.....	X.....	TorQue REFERENCE 1

CVTRA0X (295)

Signal	Ts	Unit	Range	OPC	Signal full name
HWF06B	T1	Log	"0","1"		HardWare Fault 06B

DI37DC0X (210)

Signal	Ts	Unit	Range	OPC	Signal full name
ACKFANA	T4	Log	"0", "1"	X	ACKnowledge motor FAN A
ACKFANB	T4	Log	"0", "1"	X	ACKnowledge motor FAN B
ACKMCA	T4	Log	"0", "1"	X	ACKnowledge Main Contactor A
ACKMCB	T4	Log	"0", "1"	X	ACKnowledge Main Contactor B

RECEIVE FROM CONVERTER A
DSCREC0X (216)

Signal	Ts	Unit	Range	OPC	Signal full name
ACKCFANA.....	T4.....	Log	"0","1"		ACKnowledge Convertor FAN A
ALPHA.....	T1.....	Deg.....	0-380.....		ALPHA (delay angel) convertor A
AMBTEMPA.....	T1.....	Deg.....	0.0-3276.7		AMBIent TEMPerature convertor A
APREFLTA.....	T4.....	Log	"0","1"		Air PREassure FauLT convertor A
ARMOCA	T1.....	Log	"0","1"		ARMature Over Current convertor A
ARMOVA.....	T1.....	Log	"0","1"		ARMature OVervoltage convertor A
ARMRPLA.....	T4.....	Log	"0","1"		ARMature RiPpLe convertor A
CFANNAA	T4.....	Log	"0","1"		Convertor FAN Not Acknowledged A
CFANOLA	T4.....	Log	"0","1"		Convertor FAN Over Load A
DIFCURA	T1.....	Log	"0","1"		DIFferential CURrent convertor A
DSCRLNK	T1.....	Log	"0","1"		Drive syst. Serial Communication Receive LiNK fault
ELDISCA.....	T2.....	Log	"0","1"		ELectrical DISConnection convertor
EMFACTA.....	T1.....	%.....	±400.0.....		Electro Motive Force ACTual value convertor A
EMFCORRA.....	T1.....	%.....	±200.0.....		Electro Motive Force CORRection convertor A
ETHFTACA	T4.....	Log	"0","1"		EarTH FauIT Alternating Current convertor A
ETHFTDCA	T4.....	Log	"0","1"		EarTH FauIT Direct Current convertor A
FLDCHA2.....	T2.....	Log	"0","1"		FiELD CHange exciter A
FLDOCA2.....	T4.....	Log	"0","1"		FiELD Over Current exciter
IAACTA	T1.....	%I.....	±400.0.....		I (current) Armature ACTual value motor A
IABRLEA2	T1.....	%.....	0-400.....		IA(arm. current) BRake LEvel control quadrant 2
IABRLEA4	T1.....	%.....	0-400.....		IA(arm. current) BRake LEvel control quadrant 4
IDMNFA	T1.....	A.....	0-32767		IDMN (rated direct current) convertor A
IFACTA2	T1.....	%.....	±400.0.....		IF (motor field current) ACTual value A
IFGTMINA2.....	T4.....	Log	"0","1"		IF (motor field current) Greater Than MINimum A
IFRACKA2.....	T1.....	Log	"0","1"		IF (motor field current) Reverse ACKnowledge A
INTHAOKA.....	T2.....	Log	"0","1"		INItialization HAndling OK A
MSFLTA.....	T4.....	Log	"0","1"		MainS FauLT convertor A
MSUV1CSA.....	T4.....	Log	"0","1"		Main Supply Under Voltage Convertor System A
NCHOLDA.....	T1.....	Log	"0","1"		N (speed) Control HOLD convertor A
NREFFOLA	T2.....	Log	"0","1"		N(speed) REFeRence FOLLow convertor A
PAGA.....	T1.....	kW.....	0-32767		Power Air Gap A
PHIREFA.....	T1.....	%.....	0.0-200.0.....		PHI (flux) REFeRence motor A
RDFANONA	T4.....	Log	"0","1"		ReaDy FAN ON convertor A
RDYREFCA.....	T1.....	Log	"0","1"		ReaDY for REFeRence Convertor A
REAC_FAA	T1.....	No Unit	±32767		REACtance compensation FAcator motor A
STALLPAA	T1.....	No Unit	0-32767		STALL Pulse A
TAMPUV1A.....	T2.....	Log	"0","1"		Trigger pulse AMPLifier Under Voltage convertor A
THYHTA.....	T4.....	Log	"0","1"		THYristor High Temperature convertor A
THYTEMPA.....	T1.....	Deg.....	0.0-3276.7		THYristor TEMPerature convertor A
TRIP1CSA.....	T1.....	Log	"0","1"		TRIP 1 Convertor System A
TRIP3CSA.....	T1.....	Log	"0","1"		TRIP 3 Convertor System A
TRIPWCSA	T4.....	Log	"0","1"		TRIP Warning Convertor System A
UDI0A.....	T1.....	%.....	0.0-400.0.....		UD (convertor direct voltage) at I0 (no load) A
UDI0NOMA	T1.....	VOLT.....	0-32767		UDI0NOM (nom. direct voltage) convertor A

RECEIVE FROM CONVERTER B
DSCREC0X (217)

Signal	Ts	Unit	Range	OPC	Signal full name
ACKCFANB.....T4	Log	"0","1"			ACKnowledge Convertor FAN B
ALPHAB.....T1	Deg	0-380			ALPHA (delay angle) convertor B
AMBTEMPB.....T1	Deg	0.0-3276.7			AMBient TEMPerature convertor B
APREFLTB.....T4	Log	"0","1"			Air PREssure FauLT convertor B
ARMOCB.....T1	Log	"0","1"			ARMature Over Current convertor B
ARMOVB.....T1	Log	"0","1"			ARMature OVervoltage convertor B
ARMRPLB.....T4	Log	"0","1"			ARMature RiPpLe convertor B
CFANNAB.....T4	Log	"0","1"			Convertor FAN Not Acknowledged B
CFANOLB.....T4	Log	"0","1"			Convertor FAN Over Load B
DIFCURB.....T1	Log	"0","1"			DIFferential CURrent convertor B
ELDISCB.....T2	Log	"0","1"			ELEctrical DISConnection convertor B
EMFACTB.....T1	%	±400.0			Electro Motive Force ACTual value convertor B
EMFCORRB.....T1	%	±200.0			Electro Motive Force CORRection convertor B
ETHFTACB.....T4	Log	"0","1"			EarTH FauLT Alternating Current convertor B
ETHFTDCB.....T4	Log	"0","1"			EarTH FauLT Direct Current convertor B
FLDCHB2.....T2	Log	"0","1"			Field CHange exciter B
FLDOCB2.....T4	Log	"0","1"			Field Over Current exciter B
IAACTB.....T1	%	±400.0			I (current) Armature ACTual value motor B
IABRLEB2.....T1	%	0-400			IA(arm. current) BRake LEvel control quadrant 2
IABRLEB4.....T1	%	0-400			IA(arm. current) BRake LEvel control quadrant 4
IDMNFB.....T1	AMP	0-32767			IDMN (rated direct current) convertor B
IFACTB2.....T1	%	±400.0			IF (motor field current) ACTual value B
IFGTMINB2.....T4	Log	"0","1"			IF (motor field current) Greater Than MINimum B
IFRACKB2.....T1	Log	"0","1"			IF (motor field current) Reverse ACKnowledge B
INTHAOKB.....T2	Log	"0","1"			INItialization HAndling OK B
MSFLT B.....T4	Log	"0","1"			MainS FauLT convertor B
MSUV1CSB.....T4	Log	"0","1"			Main Supply Under Voltage Convertor System B
NCHOLDB.....T1	Log	"0","1"			N (speed) Control HOLD convertor B
NREFFOLB.....T2	Log	"0","1"			N(speed) REFErence FOLLow convertor B
PAGB.....T1	kW	0-32767			Power Air Gap B
PHIREFB.....T1	%	0.0-200.0			PHI (flux) REFErence motor B
RDFANONB.....T4	Log	"0","1"			ReaDy FAN ON convertor B
RDYREFCB.....T1	Log	"0","1"			ReaDY for REFErence Convertor B
REAC_FAB.....T1	No Unit	±32767			REACtance compensation Factor motor B
STALLPAB.....T1	No Unit	0-32767			STALL Pulse B
TAMPUV1B.....T2	Log	"0","1"			Trigger pulse AMPLifier Under Voltage convertor B
THYHTB.....T4	Log	"0","1"			THYristor High Temperature convertor B
THYTEMPB.....T1	Deg	0.0-3276.7			THYristor TEMPerature convertor B
TRIP1CSB.....T1	Log	"0","1"			TRIP 1 Convertor System B
TRIP3CSB.....T1	Log	"0","1"			TRIP 3 Convertor System B
TRIPWCSB.....T4	Log	"0","1"			TRIP Warning Convertor System B
UDI0B.....T1	%	0.0-400.0			UD (convertor direct voltage) at I0 (no load) B
UDI0NOMB.....T1	VOLT	32767			UDI0NOM (nominal direct voltage) convertor B

RECEIVE FROM FIELD EXCITER A

DSCREC0X (218)

Signal	Ts	Unit	Range	OPC	Signal full name
EMFCALCA.....	T1.....	%.....	±400.0.....		Electro Motive Force CALCulated value A
FECATRIP	T4.....	Log	"0","1".....		Field ExCiter A TRIP
FLDCHA.....	T1.....	Log	"0","1".....		FieLD CHange exciter A
FLDEFLTA	T4.....	Log	"0","1".....		FieLD Earth FauLT A
FLDOCA1.....	T4.....	Log	"0","1".....		FieLD Over Current A
FLUXREFA.....	T1.....	%.....	0.0-200.0.....		FLUX REFerence motor A
IFACTA1	T1.....	%.....	±400.0.....		IF (motor field current) ACTual value B
IFGTMNA1	T4.....	Log	"0","1".....		IF (motor field current) Greater Than MiNimum
IFRACKA1.....	T1.....	Log	"0","1".....		IF (motor field current) Reverse ACKnowledge A
MSUV1FEA.....	T4.....	Log	"0","1".....		Main Supply Under Voltage 1 Field Exciter A
STALLPAE	T1.....	No Unit	0-32767		STALL Pulse A Exciter
WARNFEA	T4.....	Log	"0","1".....		WARNing Field Exciter A

RECEIVE FROM FIELD EXCITER B

DSCREC0X (219)

Signal	Ts	Unit	Range	OPC	Signal full name
EMFCALCB.....	T1.....	%.....	±400.0.....		Electro Motive Force CALCulated value B
FECBTRIP	T4.....	Log	"0","1".....		Field ExCiter B TRIP
FLDCHB.....	T1.....	Log	"0","1".....		FieLD CHange exciter B
FLDEFLTB	T4.....	Log	"0","1".....		FieLD Earth FauLT B
FLDOCB1.....	T4.....	Log	"0","1".....		FieLD Over Current B
FLUXREFB.....	T1.....	%.....	0.0-200.0.....		FLUX REFerence motor B
IFACTB1	T1.....	%.....	±400.0.....		IF (motor field current) ACTual value B
IFGTMNB1	T4.....	Log	"0","1".....		IF (motor field current) Greater Than MiNimum
IFRACKB1.....	T1.....	Log	"0","1".....		IF (motor field current) Reverse ACKnowledge B
MSUV1FEB.....	T4.....	Log	"0","1".....		Main Suply Under Voltage 1 Field Exciter B
STALLPBE	T1.....	No Unit	0-32767		STALL Pulse B Exciter
WARNFEB	T4.....	Log	"0","1".....		WARNing Field Exciter B

DSCTRA0X (288-291)

Signal	Ts	Unit	Range	OPC	Signal full name
DSCTLNK	T1	Log	"0","1"		Drive syst. Serial Comm. Transmit LiNK fault
HWFDSC	T1	Log	"0","1"		HardWare Fault Drive syst. Serial Communication
SCCASEL	Par	Log	"0","1"		Serial Communication Converter A SElect
SCCBSEL	Par	Log	"0","1"		Serial Communication Converter B SElect
SCFEASEL	Par	Log	"0","1"		Serial Communication Field Exciter A SElect
SCFEBSEL	Par	Log	"0","1"		Serial Communication Field Exciter B SElect

DO37DC0X (285)

Signal	Ts	Unit	Range	OPC	Signal full name
MCONTAON	T2	Log	"0","1"		Main CONtactor A ON
MCONTBON	T2	Log	"0","1"		Main CONtactor B ON
FANSON	T2	Log	"0","1"		FANS ON

EMFMON1X (239)DO37DC0X (285)

Signal	Ts	Unit	Range	OPC	Signal full name
ARMANEMF	T3	Log	"0","1"	X	ARMature A No EMF
ARMBNEMF	T3	Log	"0","1"	X	ARMature B No EMF
MOTAOV	T3	Log	"0","1"	X	MOTor A OVer voltage

ETHMDS0X (237)

Signal	Ts	Unit	Range	OPC	Signal full name
EARTHFLT	T4	Log	"0","1"		EARTH FauLT.

EXFLT3X (232)

Signal	Ts	Unit	Range	OPC	Signal full name
EXFLT	T4	Log	"0","1"		EXternal FauLT
EXFLTA1F	T4	Log	"0","1"	X	EXternal FauLT Analog 1 Fault
EXFLTA1W	T4	Log	"0","1"		EXternal FauLT Analog 1 Warning
EXFLTD1F	T4	Log	"0","1"	X	EXternal FauLT Digital 1 Fault
EXFLTD1W	T4	Log	"0","1"		EXternal FauLT Digital 1 Warning
EXFLTD2F	T4	Log	"0","1"	X	EXternal FauLT Digital 2 Fault
EXFLTD2W	T4	Log	"0","1"		EXternal FauLT Digital 2 Warning
EXFLTW	T4	Log	"0","1"		EXternal FauLT Warning

Signal	Ts	Unit	Range	OPC	Signal full name
ACBRFLT	T4.....	Log	"0","1"		AC BReaker FauLT
APREFLT	T4.....	Log	"0","1"		Air PREssure FauLT
ARMHL.....	T4.....	Log	"0","1"		ARMatuRe High Level
ARMNEMF	T4.....	Log	"0","1"		ARMatuRe No EMF
ARMOC.....	T1.....	Log	"0","1"		ARMatuRe Over Current
ARMOL	T4.....	Log	"0","1"		ARMatuRe Over Load
ARMOV	T2.....	Log	"0","1"		ARMatuRe Over Voltage
ARMRPL	T4.....	Log	"0","1"		ARMatuRe RiPple
CDIFCURT	T1.....	LogG	"0","1"		ConvertoR DIFFerential CURrenT
CFANNA	T4.....	Log	"0","1"		ConvertoR FAN Not Acknowledged
CFANOL.....	T4.....	Log	"0","1"		ConvertoR FAN Over Load
DCBRFLT	T4.....	Log	"0","1"		DC BReaker FauLT
DCBRTRP	T4.....	Log	"0","1"		DC BReaker TRiP
ELDISC	T4.....	Log	"0","1"		ELEctrical DISConnection
ETHFLT.....	T4.....	Log	"0","1"		EarTH FauLT
ETHFLTAC.....	T4.....	Log	"0","1"		EarTH FauLT AC
ETHFLTDC.....	T4.....	Log	"0","1"		EarTH FauLT DC
FLDEFLT.....	T4.....	Log	"0","1"		FiELd Earth FauLT
FLDOC	T4.....	Log	"0","1"		FiELd Over Current
LUBA.....	T4.....	Log	"0","1"		LUBrication fault motor A
LUBB.....	T4.....	Log	"0","1"		LUBrication fault motor B
MOBEARHT	T4.....	Log	"0","1"		MOtor BEARing High Temperature
MOBEAROT	T4.....	Log	"0","1"		MOtor BEARing Over Temperature
MOLUBFLT	T4.....	Log	"0","1"		MOtor LUBrication FauLT
MOTOL	T4.....	Log	"0","1"		MOtor Over Load
MOTOV	T4.....	Log	"0","1"		MOtor Over Voltage
MOWINHT.....	T4.....	Log	"0","1"		MOtor WINding High Temperature
MOWINOT	T4.....	Log	"0","1"		MOtor WINding Over Temperature
MSFLT	T4.....	Log	"0","1"		Main Supply FauLT
MSUV1FE	T4.....	Log	"0","1"		Main Sup. Und. Voltage 1 Field Excititer
MSUVCS.....	T4.....	Log	"0","1"		Main Sup. Und. Voltage Converter Syst.
RDFANON.....	T4.....	Log	"0","1"		ReaDy FANs ON
TAMPUV1	T4.....	Log	"0","1"		Trigger pulse AMPLifier Under Voltage 1
THYHT	T4.....	Log	"0","1"		THYristor High Temperature
TRIPWCS.....	T4.....	Log	"0","1"		TRIP Warning Converter System

HWFMDS0X (230)

Signal	Ts	Unit	Range	OPC	Signal full name
HWF.....	T4	Log	"0","1"		Hard Ware Fault
HWF06BF	T4	Log	"0","1"		Hard Ware Fault 06B Flag
HWFLNKF.....	T4	Log	"0","1"		Hard Ware Fault or LiNK Fault
LNK32F.....	T4	Log	"0","1"		LiNK 32 fault Flag
LNK35F.....	T4	Log	"0","1"		LiNK 35 fault Flag
LNK37F.....	T4	Log	"0","1"		LiNK 37 fault Flag
LNK40	T4	Log	"0","1"		LiNK fault 40
LNK40F.....	T4	Log	"0","1"		LiNK 40 fault Flag

IAREFH0X (279)

Signal	Ts	Unit	Range	OPC	Signal full name
IAACTMV	T3	%	±400.0	X	IA ACTual Measured Value
IALIMN1	T3	%	±400.0	X	IA LiMitation Negative 1
IALIMP1	T3	%	±400.0	X	IA LiMitation Positive 1
IAREF	T1	%	±400.0	X	IA REference
IAREF1	T1	%	±400		IAREference 1
IAREFLIM	T1	Log	"0","1"	X	IA REference in LiMitation
LDTRQ.....	T3	%	±400.0	X	LoaD ToRque
LMD	T3	Log	"0","1"	X	Load in Motor Detected
NCURRLIM	T3	Log	"0","1"	X	Near CURRent LiMiT
REAC_FAC	T1	No Unit	±32767		REActive_FACTor
TQLIPFAC	T3	No Unit	±32767		TorQue LiMitation Positive FACTor
TQLINFAC	T3	No Unit	±32767		TorQue LiMitation Negative FACTor

MFBRE30X (213/214)

Signal	Ts	Unit	Range	OPC	Signal full name
ACCCON.....	T2.....	Log	"0","1"	X	ACCeleration Compensation ON
ACKTRIPW	T2.....	Log	"0","1"	X	ACKnowledge TRIP Warning
COMPON1	T2.....	Log	"0","1"	X	COMPOunding ON 1
COMTSTMP.....	T2.....	Log	"0","1"	X	COMmunication Trip STall Master Piece
CONASELM	T2.....	Log	"0","1"	X	CONvertor A SElect Master
CONBSELM	T2.....	Log	"0","1"	X	CONvertor B SElect Master
EACCON.....	T2.....	Log	"0","1"	X	External ACCeleration ON
EACCT	T2.....	sec	±65.53	X	External ACCeleration TIme
EMSTOP_N.....	T2.....	Log	"0","1"	X	EMergency STOP_Negative
FASTSTOP	T2.....	Log	"0","1"	X	FAST STOP
IALIMRN.....	T2.....	%.....	±400.0	X	I(current) Armature LIMit Remote Negative
IALIMRP	T2.....	%.....	±400.0	X	I(current) Armature LIMit Remote Positive
INHESYNC.....	T2.....	Log	"0","1"	X	INHibit External SYNChronization
LNK31	T4.....	Log	"0","1"	X	LiNK fault 31
LNK51	T4.....	Log	"0","1"	X	LiNK fault 51
LOGSTOP.....	T2.....	Log	"0","1"	X	LOGger STOP
OFF11_N	T2.....	Log	"0","1"	X	OFF11_Negative
ON11.....	T2.....	Log	"0","1"	X	ON11
PBORD1	T2.....	No Unit ...	±32767	X	Pack Boolean ORD 1
PBORD2	T2.....	No Unit ...	±32767	X	Pack Boolean ORD 2
PGMSYNC1	T2.....	Log	"0","1"	X	ProGraM SYNChronization 1
POSSTREM	T2.....	Log	"0","1"	X	POSsition STart REMote
RDYSTART	T2.....	Log	"0","1"	X	ReaDY START
REMOTE.....	T2.....	Log	"0","1"	X	REMOTE
RESET	T2.....	Log	"0","1"	X	RESET
RESYNCRY	T2.....	Log	"0","1"	X	RESet of SYNChronization ReadY
RJREL.....	T2.....	No Unit ...	±128.00	X	Remote J(inertia) RELative
RPOSRATE.....	T2.....	sec	0.00-65.53	X	Remote POSitioning RATE
RPOSREF	T2.....	No Unit ...	±32767	X	Remote POSitioning REFerence
RPOSREFL.....	T2.....	No Unit ...	±(2 ³¹ -1)	X	Remote POSitioning REFerence Longword
RSPPOS	T2.....	%.....	±100.00	X	Remote SPeed POSitioning
RSPRATE	T2.....	sec	0.00-65.53	X	Remote SPeed RATE
RSPREF1.....	T2.....	%.....	±100.00	X	Remote SPeed REFerence 1
RSYNCV	T2.....	No Unit ...	±32767	X	Remote SYNC Value
RSYNCVL	T2.....	No Unit ...	±(2 ³¹ -1)	X	Remote SYNC Value Longword
RVARSLS.....	T2.....	Log	"0","1"	X	Remote VARiable SLOpe Select
SPCORR.....	T2.....	%.....	±100.00	X	SPeed CORRection
STARTREM.....	T2.....	Log	"0","1"	X	START REMote
TRIPMP.....	T2.....	Log	"0","1"	X	TRIP from MasterPiece

MFBTR30X (293/293/294)

Signal	Ts	Unit	Range	OPC	Signal full name
HWF06A.....	T3.....	Log	"0","1"	X	Hard Ware Fault 06A

MFINT10X (264)

Signal	Ts	Unit	Range	OPC	Signal full name
IGAINCH	T3	Log	"0","1"	X	I(current) GAIN CHange
MFCOMMON	T3	Log	"0","1"	X	Master Follower COMMON
NOPOS_N	T3	Log	"0","1"	X	
SEPM_N	T3	Log	"0","1"		SEPerate Mode_Negative
TQREFON1	T3	Log	"0","1"	X	TorQue REFerence ON 1

MOTEM11X (236)

Signal	Ts	Unit	Range	OPC	Signal full name
CAHT	T4	Log	"0","1"		Cooling Air motor High Temperature
CAOT	T4	Log	"0","1"		Cooling Air motor Over Temperature
CATEMP	T4	Deg	0-150		Cooling Air motor TEMPerature
MABTEMP	T4	Deg	0-150	X	Motor A Bearing Temperature
MABHT	T4	Log	"0","1"		Motor A Bearing High Temperature
MABOT	T4	Log	"0","1"		Motor A Bearing Over Temperature
MAWTEMP	T4	Deg	0-1590	X	Motor A Winding TEMPerature
MAWHT	T4	Log	"0","1"		Motor A Winding High Temperature
MAWOT	T4	Log	"0","1"		Motor A Winding Over Temperature
MBBTEMP	T4	Deg	0-150	X	Motor B Bearing Temperature
MBBHT	T4	Log	"0","1"		Motor B Bearing High Temperature
MBBOT	T4	Log	"0","1"		Motor B Bearing Over Temperature
MBWTEMP	T4	Deg	0-150	X	Motor B Winding Temperature
MBWHT	T4	Log	"0","1"		Motor B Winding High Temperature
MBWOT	T4	Log	"0","1"		Motor B Winding Over Temperature
MOTHT	T4	Log	"0","1"	X	MOTor High Temperature
MOTOT	T4	Log	"0","1"	X	MOTor Over Temperature

MOTOL11X (235)

Signal	Ts	Unit	Range	OPC	Signal full name
ARMHL1	T4	Log	"0","1"	X	ARMature High Load 1
ARMOL1	T4	Log	"0","1"	X	ARMature Over Load 1

NCTR23X (277)

Signal	Ts	Unit	Range	OPC	Signal full name
HOLDSC	T1	Log	"0","1"	X	HOLD Speed Controller
LDTQREF	T1	%	±400.00	X	LoaD TorQue REFerence
NDEV	T1	%	±100.00	X	N (speed) DEViation
NREGOUT	T1	%	±400.00	X	N (speed) REGulator OUT put
NREF	T1	%	±100.00	X	N (speed) REFerence
NSTEPDEV	T1	%	±100.00	X	N (speed) STEP DEViation
TQREF2	T1	%	±400.0	X	TorQue REFerence 2
TQINLIM	T1	Log	"0","1"	X	TorQue IN reference LIMitation

NRAMP30X (272)

Signal	Ts	Unit	Range	OPC	Signal full name
DSPREF.....	T2....	No Unit	±32767		Derivate SPeed REference
DSPRON.....	T2....	Log	"0","1"		Derivate SPeed Reference ON
NREF1	T2....	%.....	±100.00	X	N(rotational speed) REference 1
NREF1MF	T2....	%.....	±100.00	X	N(rot. sp.) REference 1 Master Flag
PRATE	T2....	No Unit	±(2 ³¹ -1)		Positioning RATE
RAMPACC	T2....	%.....	±400.0	X	RAMP ACceleration
VION	T2....	Log	"0","1"		Variable Increment ON

NREFH10X (270)

Signal	Ts	Unit	Range	OPC	Signal full name
LSPREF	T2....	%.....	±100.00		Local SPeed REference
NREF2	T2....	%.....	±100.00	X	N(rotational speed) REference 2
SPREF	T2....	%.....	±100.00	X	SPeed REference
SPREF1	T2....	%.....	±100.00	X	SPeed REference 1

OPCHDS0X (203)

Signal	Ts	Unit	Range	OPC	Signal full name
LNK35	T4....	Log	"0","1"		LiNK 35
LNK55	T4....	Log	"0","1"		Link 55
RDYLOG	T4....	Log	"0","1"		ReaDY LOGger
RESET1	T4....	Log	"0","1"		RESET 1
S_AMP	BG....	%.....	±100.....		Step test_AMPlitude
S_FUNO.....	BG....	No Unit	1-6.....		Step test_FUnction module NO
S_TIME	BG....	sec	0.0-99.9		Step test _TIME
S_TRIGG	BG....	Log	"0","1"		Step test_TRIGG flag

ORDERH0X (263)

Signal	Ts	Unit	Range	OPC	Signal full name
ACBRATRP.....T2	Log	"0","1"	X	AC BReaker A TRiP	
ACBRBTRP.....T2	Log	"0","1"	X	AC BReaker B TRiP	
DEBLOCKA.....T4	Log	"0","1"	X	DEBLOCK convertor A	
DEBLOCKA1.....T2	Log	"0","1"		DEBLOCK convertor A1	
DEBLOCKB.....T4	Log	"0","1"	X	DEBLOCK convertor B	
DEBLOCKB1.....T2	Log	"0","1"		DEBLOCK convertor B1	
FANSAON.....T4	Log	"0","1"	X	FANS convertor A ON	
FANSBON.....T4	Log	"0","1"	X	FANS convertor B ON	
FLDEXAON.....T4	Log	"0","1"	X	FieLD EXciter A ON	
FLDEXBON.....T4	Log	"0","1"	X	FieLD EXciter B ON	
FLDHEATA.....T4	Log	"0","1"		FieLD HEAT A on	
FLDHEATB.....T4	Log	"0","1"		FieLD HEAT B on	
MCAON.....T4	Log	"0","1"		Main Contactor A ON	
MCBON.....T4	Log	"0","1"		Main Contactor B ON	
MCONTAON.....T4	Log	"0","1"		Main CONTactor A ON	
MCONTBON.....T4	Log	"0","1"		Main CONTactor B ON	
MCONTOFP.....T4	Log	"0","1"	X	Main CONTactor OFF Pulse	
MCONTONP.....T4	Log	"0","1"	X	Main CONTactor ON Pulse	
RELCTRA.....T1	Log	"0","1"		RELease ConverToR A	
RELCTRB.....T1	Log	"0","1"		RELease ConverToR B	

PCALC10X (226)

Signal	Ts	Unit	Range	OPC	Signal full name
IAAT4.....	T4 ...	%.....	±400.....		I(current) Armature A on T4 level
IABT4.....	T4 ...	%.....	±400.....		I(current) Armature B on T4 level
PMOT_KW.....	T4 ...	KW	0-32767	X.....	Power from MOTors in Kilo Watt

POSCT0X (265.01/265.02)

Signal	Ts	Unit	Range	OPC	Signal full name
DELINPOS.....T3	Log	"0","1"	X		DELAyd IN POSition
MFLAG.....	Log	"0","1"			Master FLAG
PGMSYNC.....T3	Log	"0","1"	X		ProGraM SYNChronization
PGTLVL1.....T3	Log	"0","1"	X		Positioning Greater Than LeVeL 1
PGTLVL2.....T3	Log	"0","1"	X		Positioning Greater Than LeVeL 2
POSDIFF.....T3	No Unit	±32767			POSitioning DIFFerence
POSMV.....T3	No Unit	0-32767	X		POSitioning Mean Value
POSMVL.....T3	No Unit	±(2 ³¹ -1)			POSitioning Mean Value Longword
PRECOUNT.....T3	No Unit	±(2 ³¹ -1)			PREset COUNTer
SPPOS2.....T3	%	±100.00	X		SPEed POSitioning 2

REVFWD0X (278)

Signal	Ts	Unit	Range	OPC	Signal full name
FLDCH1	T3.....	Log	"0","1"	X	Field CHange 1
IFREF4.....	T2.....	%	±400.0	X	IF (excitation current) REFerence 4

RUNDSC0X (231)

Signal	Ts	Unit	Range	OPC	Signal full name
CPUASTAL	T2.....	Log	"0","1"		CPU A STALI
CPUBSTAL	T2.....	Log	"0","1"		CPU B STALI
CPUESTLA	T2.....	Log	"0","1"		CPU Exciter STaLI A
CPUESTLB	T2.....	Log	"0","1"		CPU Exciter STaLI B
CPUSTLCS	T2.....	Log	"0","1"		CPU STaLI Convertor Sistem
CPUSTLFE.....	T2.....	Log	"0","1"		CPU STaLI Field Exciter
CSTALLMP	T3.....	Log	"0","1"		Computer STALL Master Piece
STALLPB	T3.....	Log	"0","1"		STALL Pulse type B
STALLPB1.....	T1.....	No Unit	1-32767		STALL Pulse type B1

SEQCTR0X (257)

Signal	Ts	Unit	Range	OPC	Signal full name
CONVON	T4.....	Log	"0","1"	X	CONVerter ON
DEBLOCDS.....	T4.....	Log	"0","1"	X	DEBLOCK Drive System
FANSON	T4.....	Log	"0","1"	X	FANS ON
FLDEXCON.....	T4.....	Log	"0","1"	X	Field EXCiter ON
FRESET	T4.....	Log	"0","1"	X	Fault RESET
MCONTOFF	T4.....	Log	"0","1"	X	Main CONTactor OFF
MCONTON.....	T4.....	Log	"0","1"	X	Main CONTactor ON
MCONTON1.....	T4.....	Log	"0","1"		Main CONTactor ON 1
ON12.....	T4.....	Log	"0","1"	X	ON 1 or 2
RDYRUN.....	T4.....	Log	"0","1"	X	ReaDY for RUN
RDY2REF.....	T1.....	Log	"0","1"	X	ReaDY 2 for REFerence
RELCTR.....	T1.....	Log	"0","1"	X	RELease ConverToR
RESET2	T4.....	Log	"0","1"	X	RESET 2

Signal	Ts	Unit	Range	OPC	Signal full name
BUSSEL.....-	Log	"0","1"			BUS SElect
EMOFF.....T4	Log	"0","1"			EMergency OFF
EMSTART.....T4	Log	"0","1"			EMergency START
EMSTOP1.....T4	Log	"0","1"			EMergency STOP 1
EMSTOP2.....T4	Log	"0","1"		X	EMergency STOP 2
FLDHEAT.....T4	Log	"0","1"		X	FiELD HEAT
IN0STOPS.....T4	Log	"0","1"		X	Interlocking N0(zero speed) STOP Select
JOGSEL.....T4	Log	"0","1"		X	JOG SElect
LNKON.....T4	Log	"0","1"		X	LiNK 31 ON
LOCALIND.....T4	Log	"0","1"		X	LOCAL mode INDication
LOCM.....T4	Log	"0","1"			LOCAL Mode
LOSSAVE.....T4	Log	"0","1"		X	LOSs SAVEing
OFF1.....T4	Log	"0","1"		X	OFF 1
ON1.....T4	Log	"0","1"		X	ON 1
RDYON.....T4	Log	"0","1"		X	ReaDY ON
REMIND.....T4	Log	"0","1"		X	REMoTe INDication
REM2IND.....T4	Log	"0","1"		X	REmote 2 INDication
SPREFON.....T4	Log	"0","1"		X	SPeed REFeRence ON
STARTPOS.....T2	Log	"0","1"		X	START POSitioning
STARTRL.....T4	Log	"0","1"			START order Remote Local
START2B.....T4	Log	"0","1"		X	START 2B

SEQMO10X (238.01/238.02)

Signal	Ts	Unit	Range	OPC	Signal full name
APREAF.....	T4.....	Log	"0","1"		Air PREssure A FauLt
APREBFL.....	T4.....	Log	"0","1"		Air PREssure B FauLt
APREFL.....	T4.....	Log	"0","1"	X	Air PREssure FauLt
DCBRAFL.....	T4.....	Log	"0","1"		DC BReaker A Fault
DCBRANA.....	T4.....	Log	"0","1"		DC BReaker A Not Acknowledged
DCBRBF.....	T4.....	Log	"0","1"		DC BReaker B Fault
DCBRBNA.....	T4.....	Log	"0","1"		DC BReaker B Not Acknowledged
DCBRF.....	T4.....	Log	"0","1"	X	DC BReakers Faulty
DCBRNA.....	T4.....	Log	"0","1"	X	DC BReakers Not Acknowledged
FANANA.....	T4.....	Log	"0","1"		FAN A Not Acknowledged
FANAOL.....	T4.....	Log	"0","1"		FAN A Over Load
FANBNA.....	T4.....	Log	"0","1"		FAN B Not Acknowledged
FANBOL.....	T4.....	Log	"0","1"		FAN B Over Load
FANNA.....	T4.....	Log	"0","1"	X	FANs Not Acknowledged
FANOL.....	T4.....	Log	"0","1"	X	FANs Over Load
FLDALC.....	T4.....	Log	"0","1"		FieLD A Low Current
FLDANA.....	T4.....	Log	"0","1"		FieLD A Not Acknowledged
FLDBLC.....	T4.....	Log	"0","1"		FieLD B Low Current
FLDBNA.....	T4.....	Log	"0","1"		FieLD B Not Acknowledged
FLDLC.....	T4.....	Log	"0","1"	X	FieLDs Low Current
FLDNA.....	T4.....	Log	"0","1"	X	FieLDs Not Acknowledged
MCONTAF.....	T4.....	Log	"0","1"		Main CONTactor A Fault
MCONTANA.....	T4.....	Log	"0","1"		Main CONTactor A Not Acknowledged
MCONTBF.....	T4.....	Log	"0","1"		Main CONTactor B Fault
MCONTBNA.....	T4.....	Log	"0","1"		Main CONTactor B Not Acknowledged
MCONTF.....	T4.....	Log	"0","1"	X	Main CONTactors Faulty
MCONTNA.....	T4.....	Log	"0","1"	X	Main CONTactors Not Acknowledged
MOCOOFLT.....	T4.....	Log	"0","1"		MOtor COOLing FauLT
OPUMPNA.....	T4.....	Log	"0","1"	X	Oil PUMP Not Acknowledged
OPUMPOL.....	T4.....	Log	"0","1"	X	Oil PUMP Over Load

SEQST0X (249)

Signal	Ts	Unit	Range	OPC	Signal full name
INLKRES.....	T4.....	Log	"0","1"		INterLocK RESet
RDY2RUN.....	T4.....	Log	"0","1"	X	ReaDY 2 for RUN
START1.....	T4.....	Log	"0","1"	X	START 1 command
STOPIND.....	T4.....	Log	"0","1"	X	STOP INDication

SIGHDIOX (256)

Signal	Ts	Unit	Range	OPC	Signal full name
ACCON1	T2	Log	"0","1"		ACCeleration ON 1
AIFOLLOW	T2	Log	"0","1"		Analog Input FOLLOW
AIREFON	T2	Log	"0","1"		Analog Input REFERENCE ON
EACCON1	T2	Log	"0","1"		External ACCeleration ON 1
IALIMCH	T2	Log	"0","1"		I(current) Armature LIMit CHange
POSRAMPS	T2	Log	"0","1"		POSitioning RAMP Select
STPOS2	T2	Log	"0","1"		STart POSitioning 2

SPMEAS0X (223)

Signal	Ts	Unit	Range	OPC	Signal full name
NACT	T1	%	±100.00	X	N(rotational speed) ACTual
NACTMV	T2	%	±100.00	X	N(rotational speed) ACTual Mean Value
NACTRPM	T3	RPM	±32767	X	N(rot. sp.) ACTual value in Revolution Per Minute
NFEEDB	T1	No Unit	±32767.9999		N(rot. sp.) FEED Back
NFEEDBPT	T1	No Unit	±32767.9999		N(rot. sp.) FEED Back Pulse Transmitter
POSACT	T1	No Unit	±(2 ³¹ -1)		POSition ACTual value
SYNCRDY	T1	Log	"0","1"	X	SYNChronization ReaDY

SPMON1X (233)

Signal	Ts	Unit	Range	OPC	Signal full name
MOTHSP	T4	Log	"0","1"		MOTor High SPeed
MOTOSP	T2	Log	"0","1"	X	MOTor Over SPeed
MOTOSPHW	T2	Log	"0","1"		MOTor Over SPeed Hard Ware
MOTOSPSW	T2	Log	"0","1"		MOTor Over SPeed Soft Ware
MOTSP1	T4	Log	"0","1"		MOTor SPeed 1
NGTN0	T4	Log	"0","1"	X	N (speed) Greater Than N0 (zero speed)
NSPFBACK	T2	Log	"0","1"	X	No SPeed Feed BACK

STALLM0X (234)

Signal	Ts	Unit	Range	OPC	Signal full name
STALL	T4	Log	"0","1"	X	STALLing

STEPDS0X (205)

Signal	Ts	Unit	Range	OPC	Signal full name
STEP	T2	%	0-100	X	STEP

STRTDS1X (207)

Signal	Ts	Unit	Range	OPC	Signal full name
IANOM1	T4	AMP	0-32767	X	IA (motor current) NOMinal 1

TEST30X (206)

Signal	Ts	Unit	Range	OPC	Signal full name
AOTEST1.....	BG....	%.....	±100.0.....	X.....	Analog Output TEST1
ATRIG.....	T2....	Log.....	"0","1".....		Analog TRIG
CCPULOAD.....	BG....	%.....	0.0-100.0.....	X.....	CCPU LOAD
DERTEST.....	T2....	%.....	±100.....		DERivative TEST
DERTRIG.....	T2....	Log.....	"0","1".....		DERivative TRIG
DOTEST1.....	BG....	Log.....	"0","1".....	X.....	Digital Output TEST1
DTEST1.....	T2....	%.....	0, 50.....	X.....	Digital signal TEST1
DTEST2.....	T2....	%.....	0, 50.....	X.....	Digital signal TEST2
DTRIG.....	T2....	Log.....	"0","1".....		Digital TRIG

TESTDS0X (227)

Signal	Ts	Unit	Range	OPC	Signal full name
DRIVMODE.....	T4....	No Unit	0-32767.....	X.....	DRIVE MODE
EMFSTEP.....	T4....	%.....	±400.....		EMF STEP
IREF1.....	T3....	%.....	±400.....		I(current) Field REference 1
NREFTEST.....	T4....	%.....	100.0.....	X.....	N(rotational speed) REference TEST
POSSTEPF.....	T3....	%.....	±100.....		POSsition STEP Fraction
TEST.....	-.....	Log.....	"0","1".....		TEST mode
TESTREF.....	T3....	%.....	±100.0.....	X.....	TEST REference
TESTREFTH....	T4....	Log.....	"0","1".....		TEST REference Too High

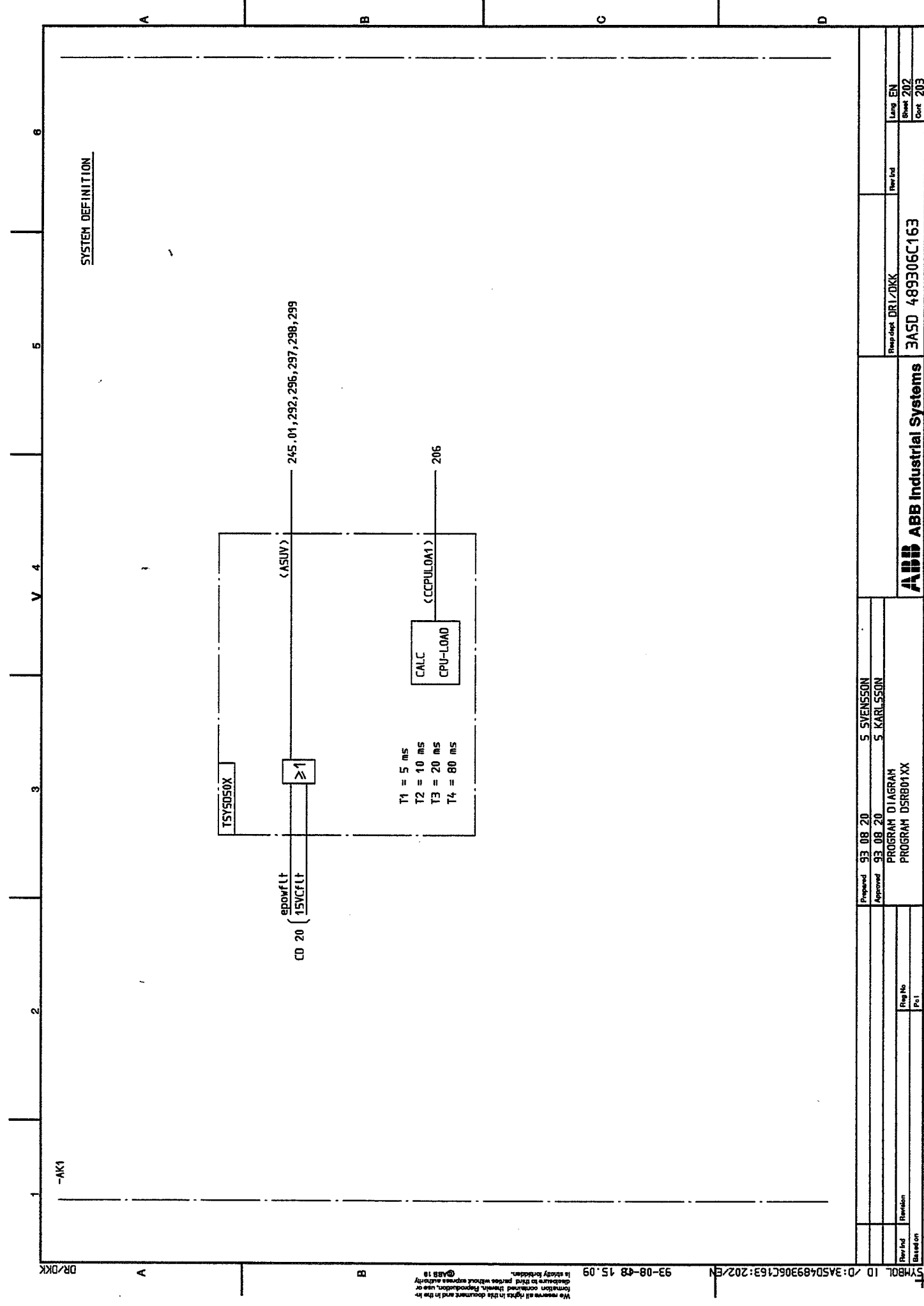
TQLST10X (276)

Signal	Ts	Unit	Range	OPC	Signal full name
TQLIMN1.....	T1....	%.....	0-400.....		TorQue LIMit Negative 1
TQLIMP1.....	T1....	%.....	0-400.....		TorQue LIMit Positive 1
TQRLIMN1.....	T1....	%.....	0-400.....		TorQue Remote LIMit Negative 1
TQRLIMP1.....	T1....	%.....	0-400.....		TorQue Remote LIMit Positive 1
TQSTEP.....	T2....	%.....	±400.....		TorQue STEP

Signal	Ts	Unit	Range	OPC	Signal full name
ARMOLW.....T4 Log.....	"0","1"				ARMature OverLoad Warning
CSATRIP .....T4 Log.....	"0","1"				Convertor System A TRIPped
CSBTRIP .....T4 Log.....	"0","1"				Convertor System B TRIPped
ETHFLTW .....T4 Log.....	"0","1"				EarTH FauLT Warning
ETHFTACW .....T4 Log.....	"0","1"				EarTH FauLT AC sypply Warning
ETHFTDCW .....T4 Log.....	"0","1"				EarTH FauLT DC sypply Warning
FAULTIND.....T2 Log.....	"0","1"			X	FAULT INDication
FLDCUR0.....T1 Log.....	"0","1"			X	Field CURrent 0 (zero)
FLDLCS- Log.....	"0","1"				Field Low CUrrent Select
TRIP1.....T1 Log.....	"0","1"			X	TRIP 1
TRIP1CS.....T4 Log.....	"0","1"				TRIP 1 Convertor System
TRIP2.....T1 Log.....	"0","1"			X	TRIP 2
TRIP3.....T1 Log.....	"0","1"			X	TRIP 3
TRIP3CS.....T4 Log.....	"0","1"				TRIP 3 Convertor System
TRIPPED .....T1 Log.....	"0","1"			X	TRIPPED
TRIPWARN.....T4 Log.....	"0","1"			X	TRIP WARNing
TRIPWTOT4 Log.....	"0","1"			X	TRIP Warning Time Out

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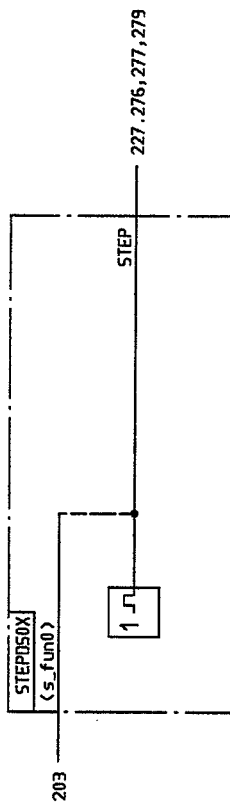
CONNECTABLE INPUT SIGNALS

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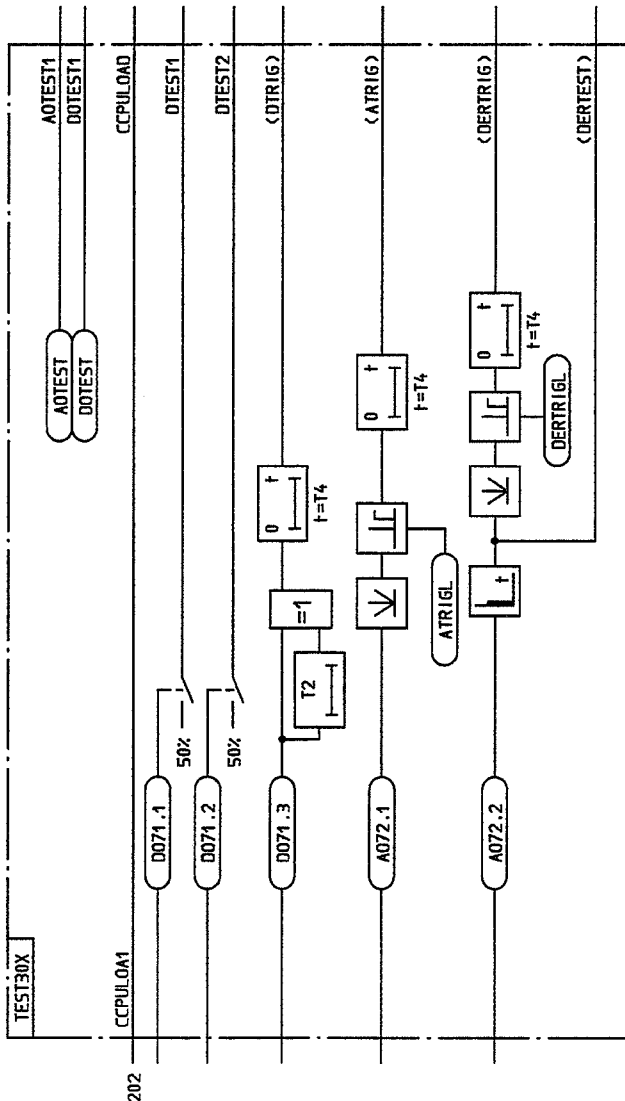
TEST SUPPORT

TEST SUPPORT

NOTE :

- WHEN THE LOGGER HAS BEEN TRIGGERED FROM TEST3X OBSERVE FOLLOWING POINTS BEFORE THE CONVERTOR IS LEFT IN NORMAL OPERATION :
- REMOVE CONNECTIONS TO D071 AND A072
 - PRESS PUSH BUTTON RESET
 - START THE LOGGER.

-AK1

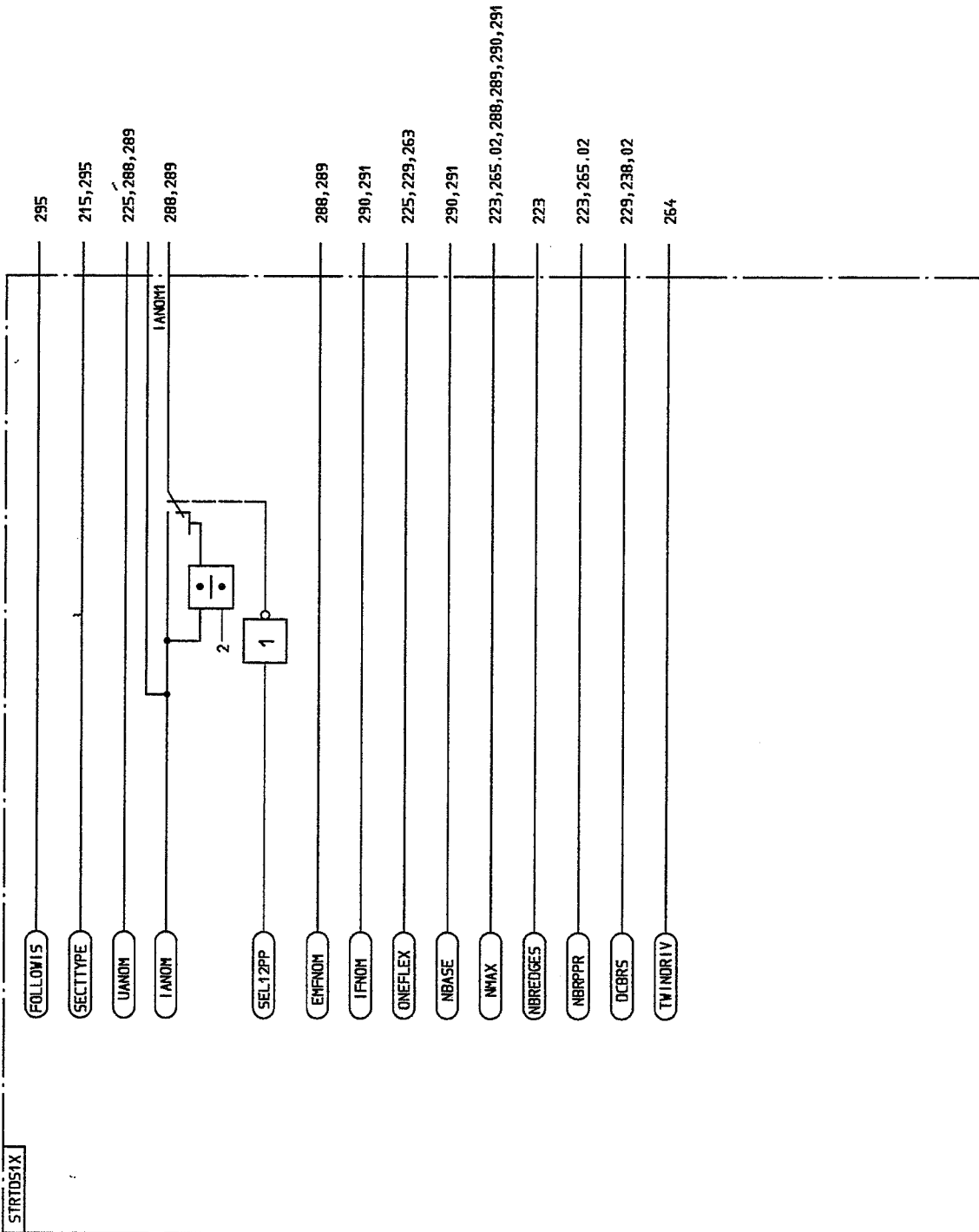


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Approved	93 08 20	S. KARLSSON	Rev. 102	Sheet 206
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DRIVE SYSTEM START UP PARAMETERS

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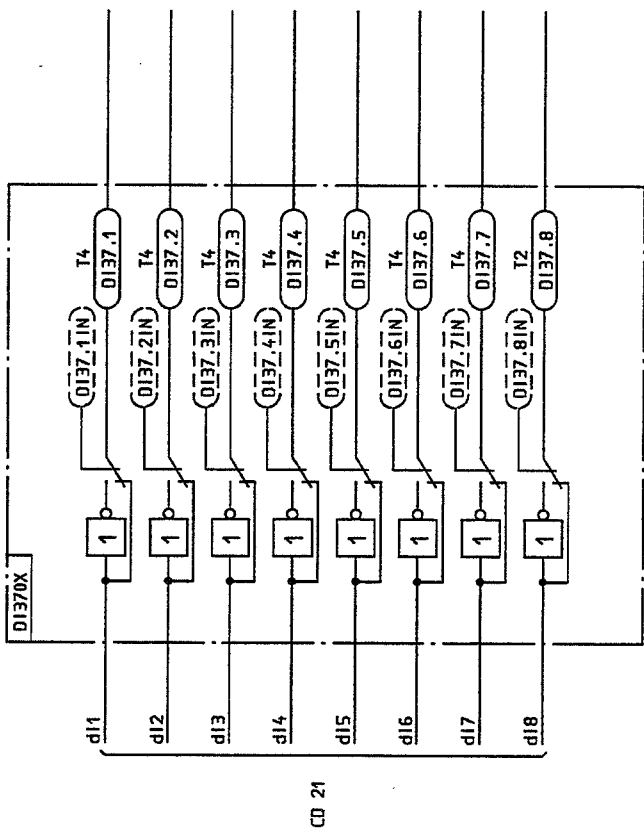
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BASIC DIGITAL INPUT



Flow Ind

Revision

Flow Ind

Rev Ind

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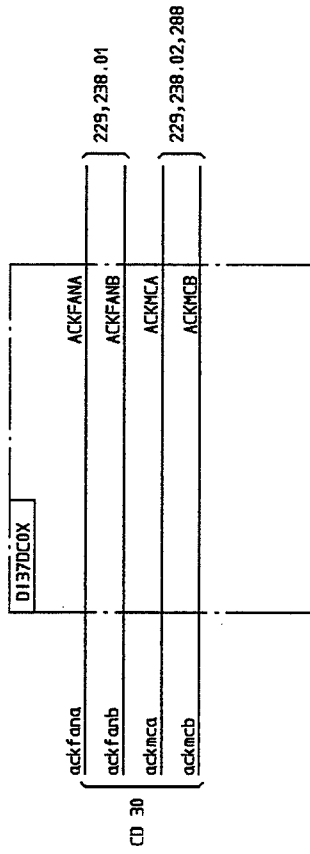
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DIGITAL IN SEQUENCE CONTROL



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Revised
Revised

Revised

Revised

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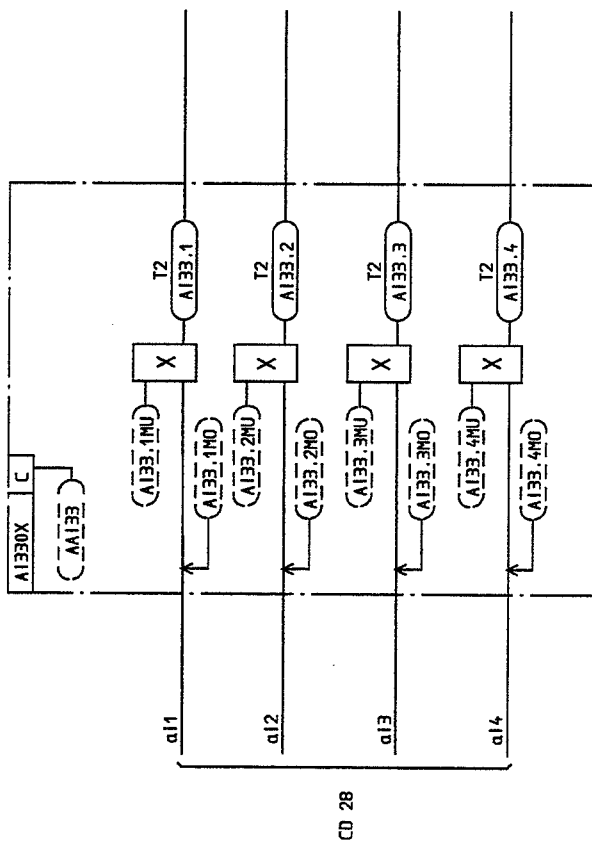
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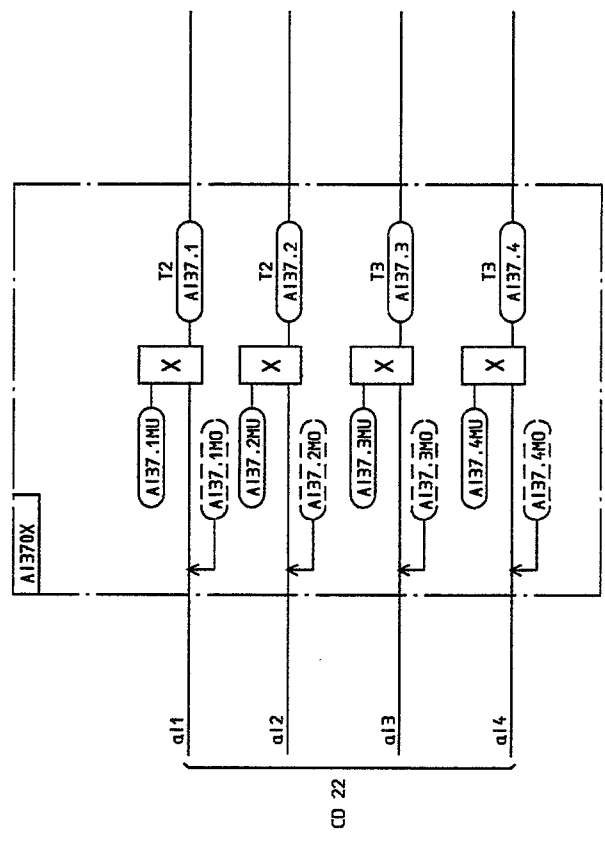
ANALOG INPUT

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ANALOG INPUT
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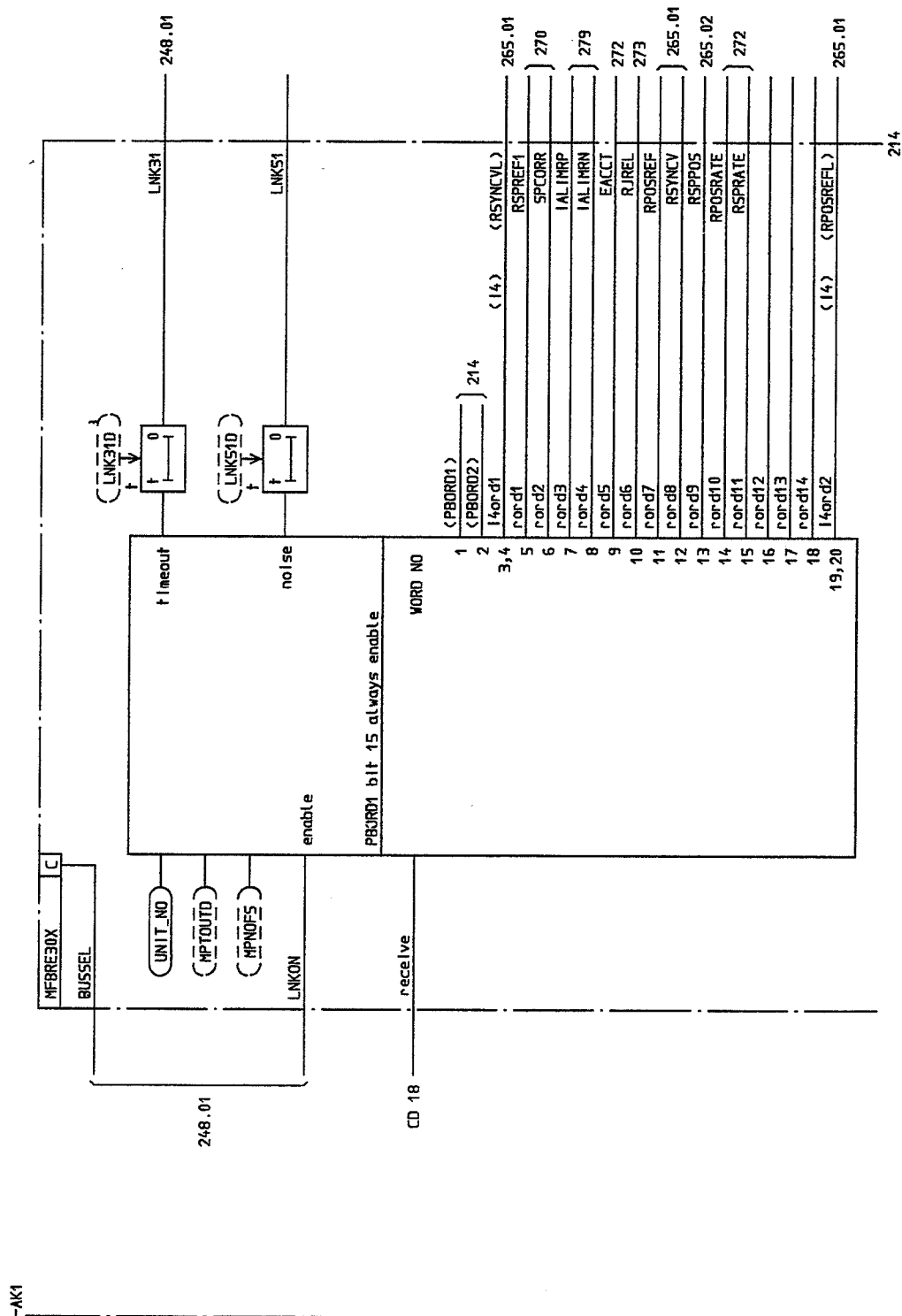


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MASTER FIELD BUS COMMUNICATION
RECEIVE

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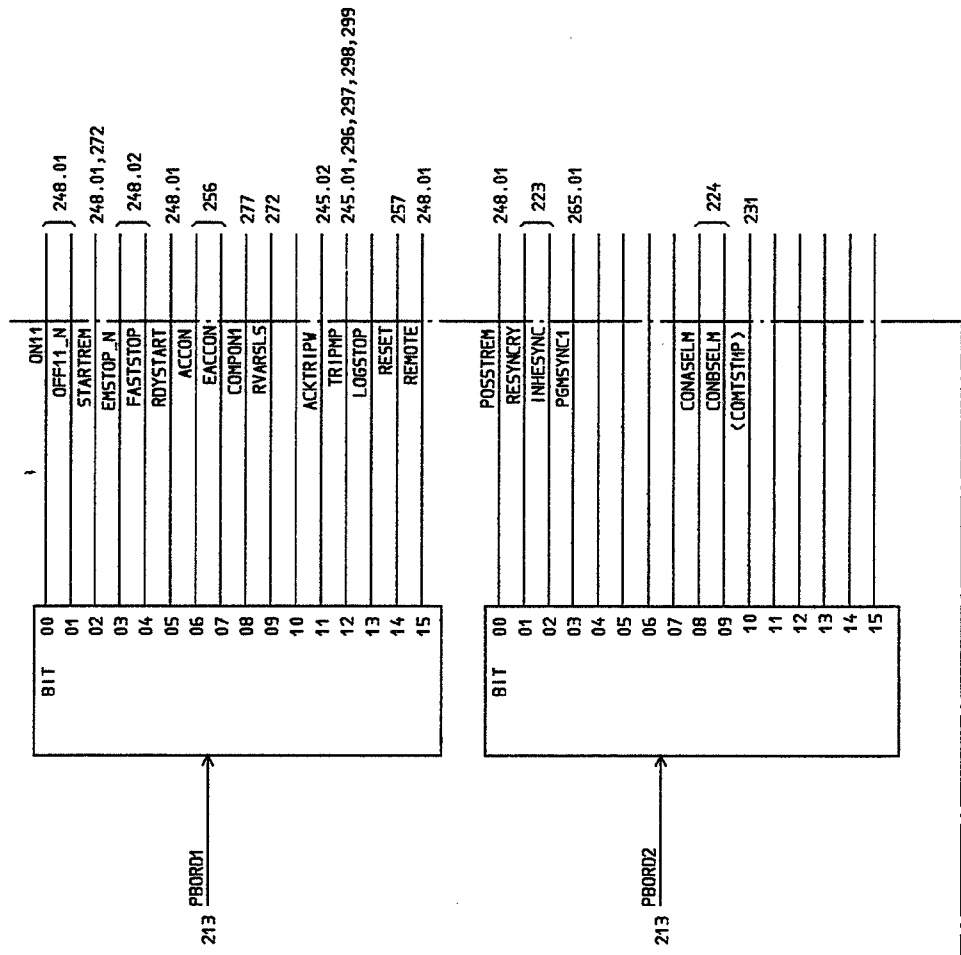
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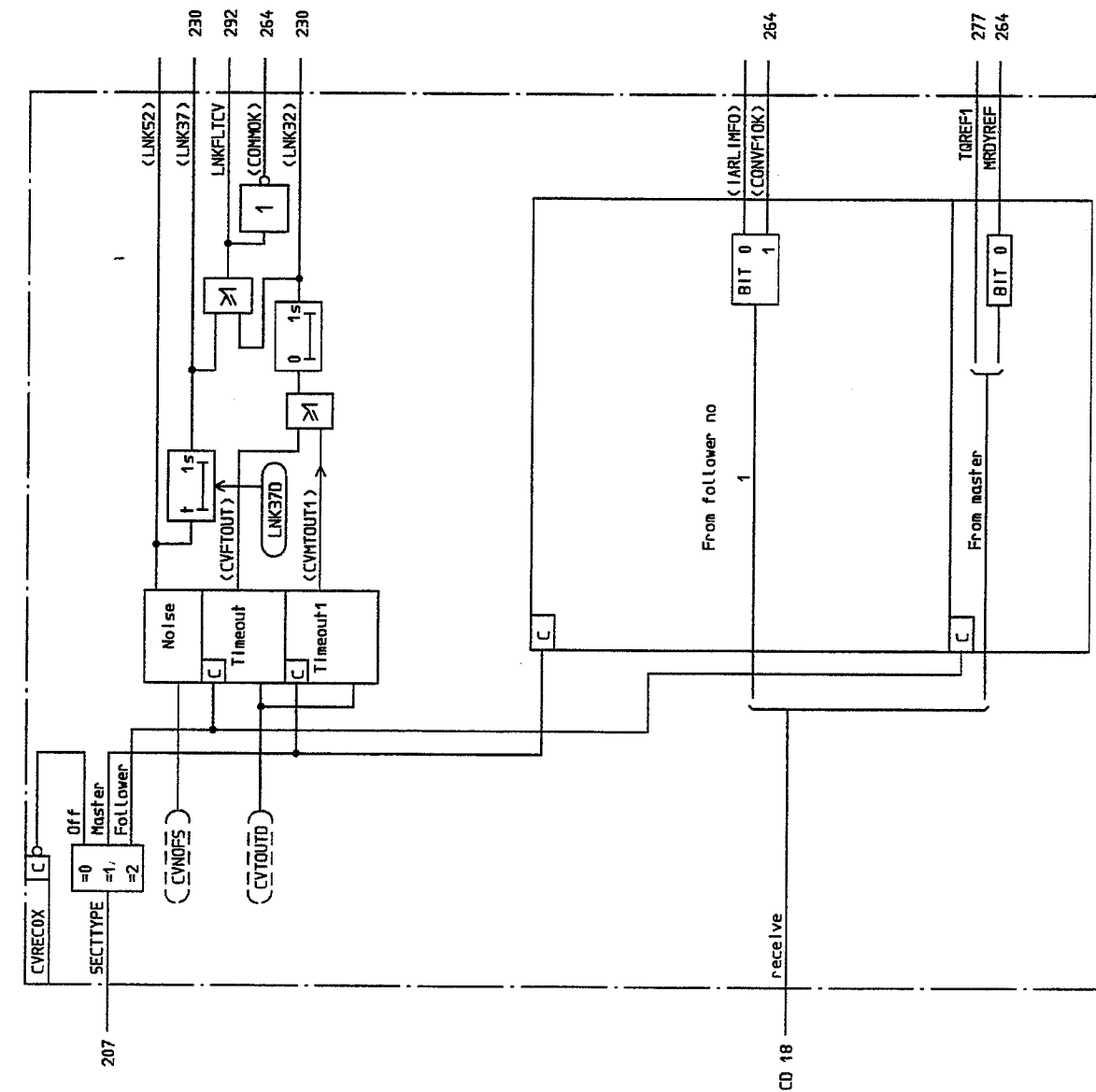
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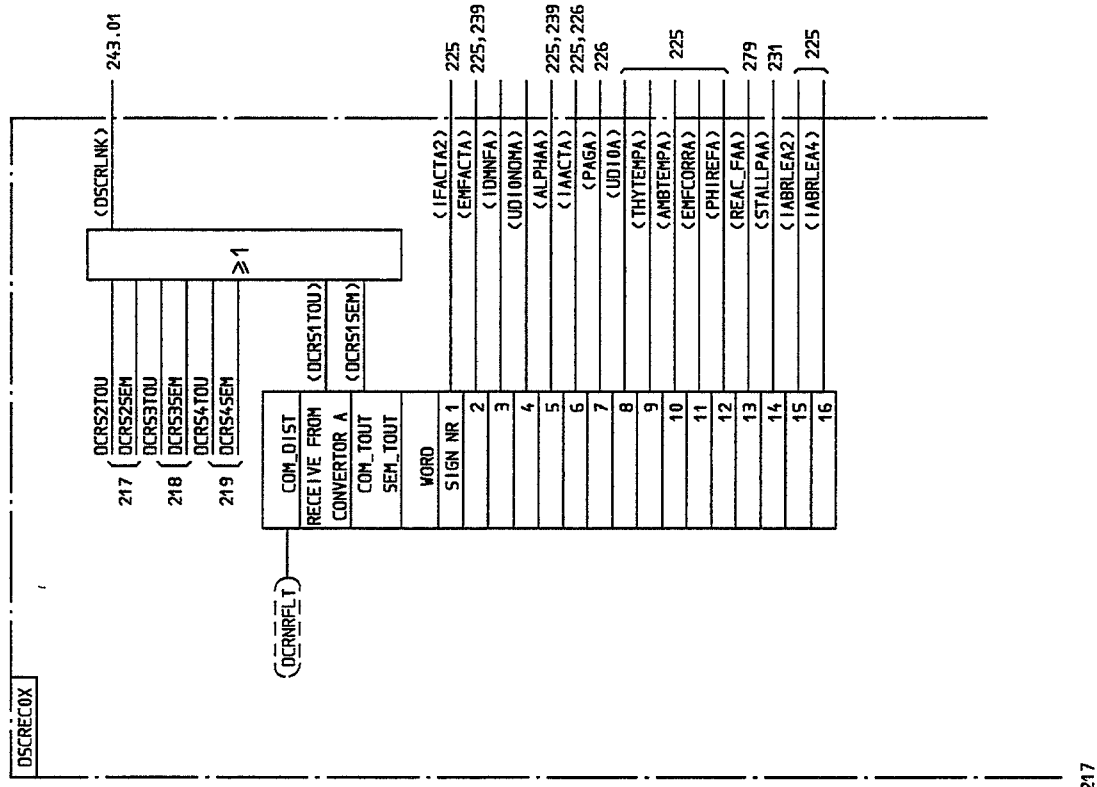
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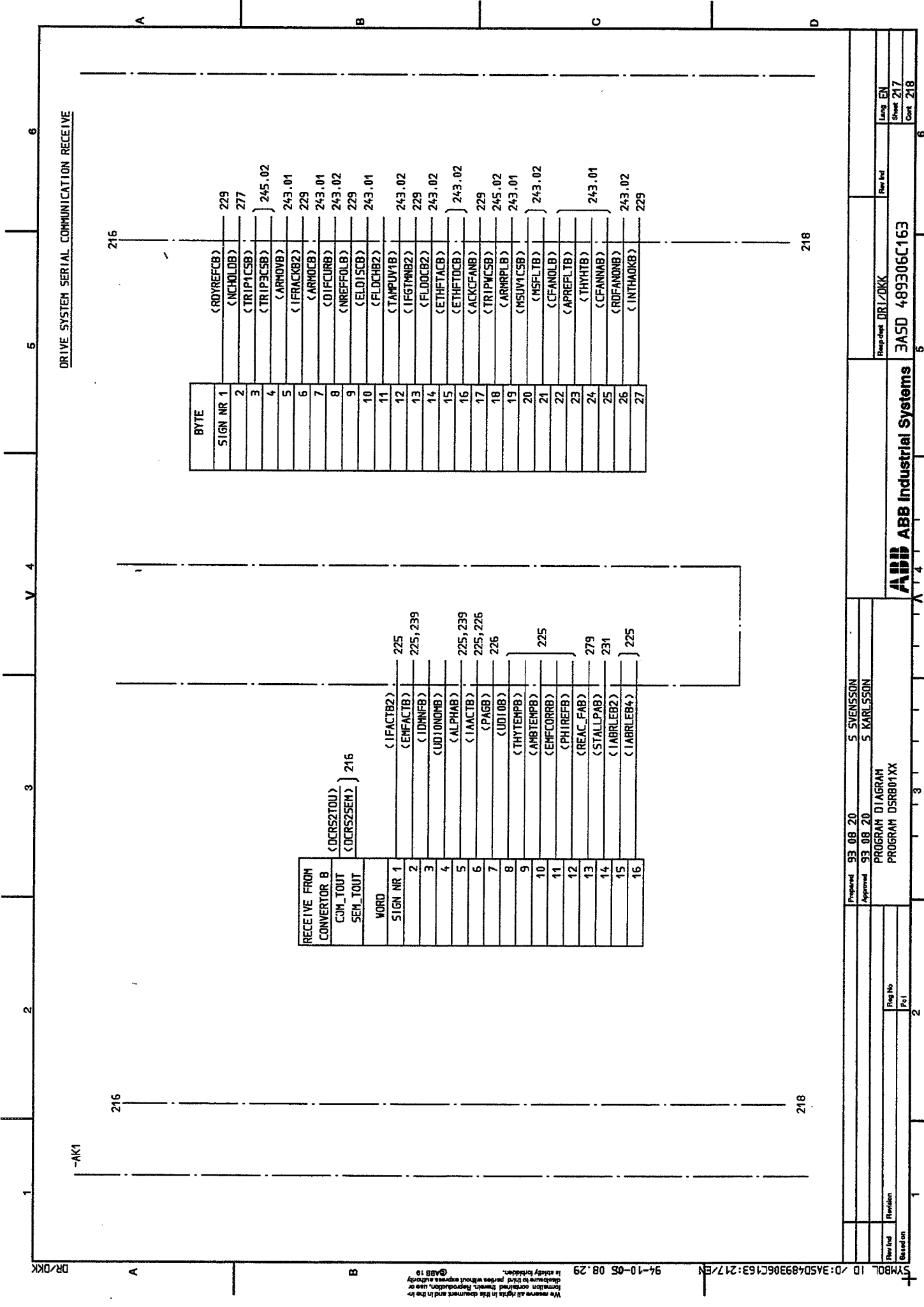
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DRIVE SYSTEM SERIAL COMMUNICATION RECEIVE

BYTE	
SIGN NR 1	(RDYRECA) 229
2	(NCHOLDA) 277
3	(TRIP1CSA)
4	(TRIP2CSA) 245.02
5	(ARNOVA) 243.01
6	(IFRACKA2) 229
7	(ARMCA) 243.01
8	(DIFCURA) 243.02
9	(NREFFOLA) 229
10	(ELDISCA) 243.01
11	(FLDCHA2)
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17	(ACKCFANA) 229
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19	(ARRPLA) 243.01
20	(MSUVICSA)
21	(MSFLTA) 243.02
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23	(APREFLTA)
24	(THYTA) 243.01
25	(CFANAA)
26	(ROFANONA) 243.02
27	(INTHAKA) 229

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Rev. Ind.		
Rev. Ind.		



BYTE
SIGN NR 1
2
3
4
5
6
7
8

<IFACTA1>
 <FLUXREFA>
 <EMFCALCA>
 <STALLPAE>

229	229	243	229	245.0	243.0	245.0
(FLOCHA)	(IFRACKA1)	(FLOEFLTA)	(IFGTHNA1)	(FECATRIIP)	(MSUV1FEA)	(WARNFEA)

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DRIVE SYSTEM SERIAL COMMUNICATION RECEIVE

218

218

RECEIVE FROM
FIELD EXITER B
COM_TOUT
SEM_TOUT
WORD
SIGN NR 1
2
3
4

<DCRS4TOUT>
<DCRS4SEN> } 216

<IFACTB1> } 225
<FLUXREFB>
<ENFCALCB> } 225, 288
<STALLPBE> } 231

BYTE
SIGN NR 1
2
3
4
5
6
7
8

<FLOCHE> } 229
<IFRACKB1>
<FLDEPLTB> } 243.02
<FLODCB1>
<IFGTHNB1> } 229
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<MSUMFEB> } 243.02
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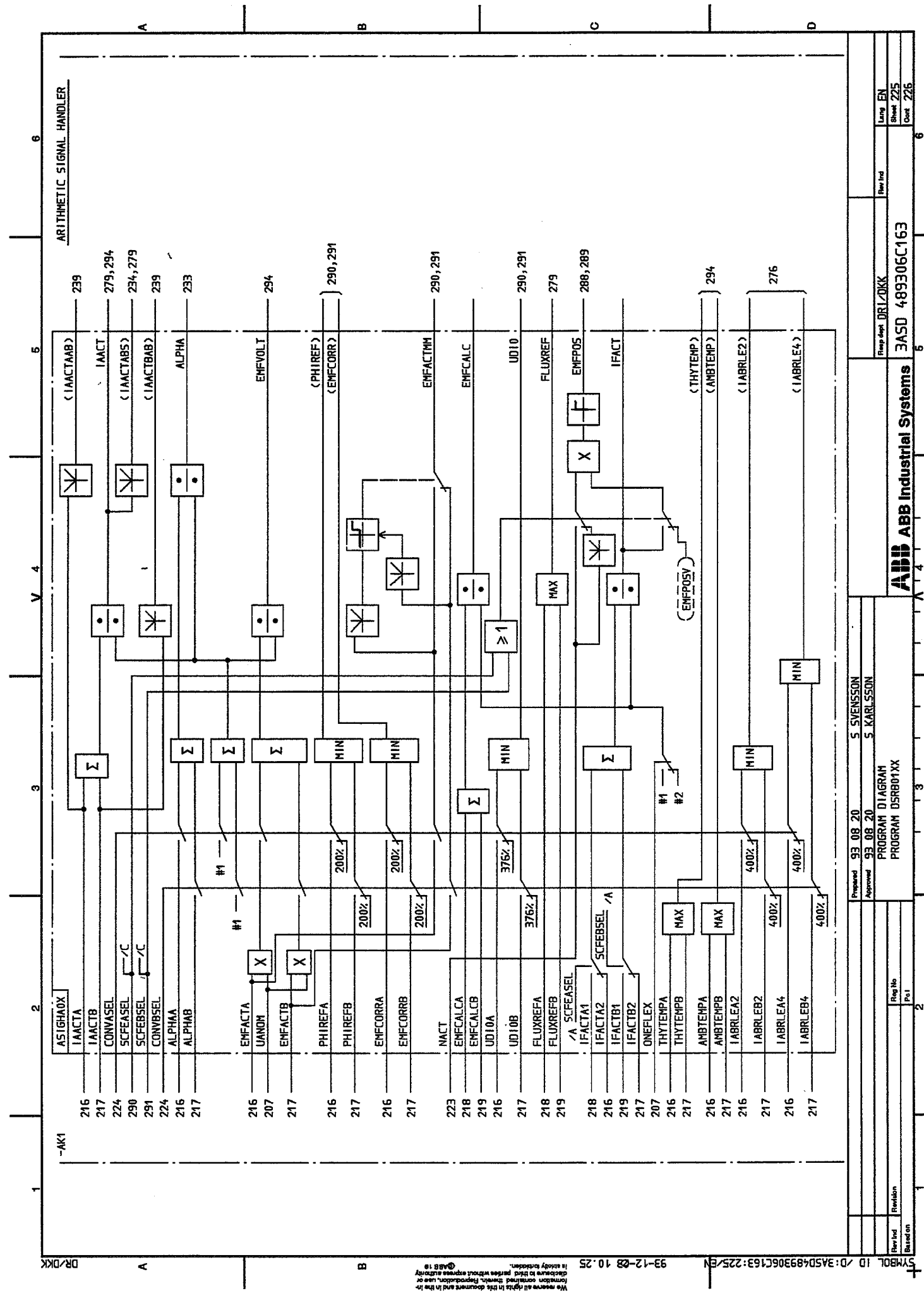
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219/EN

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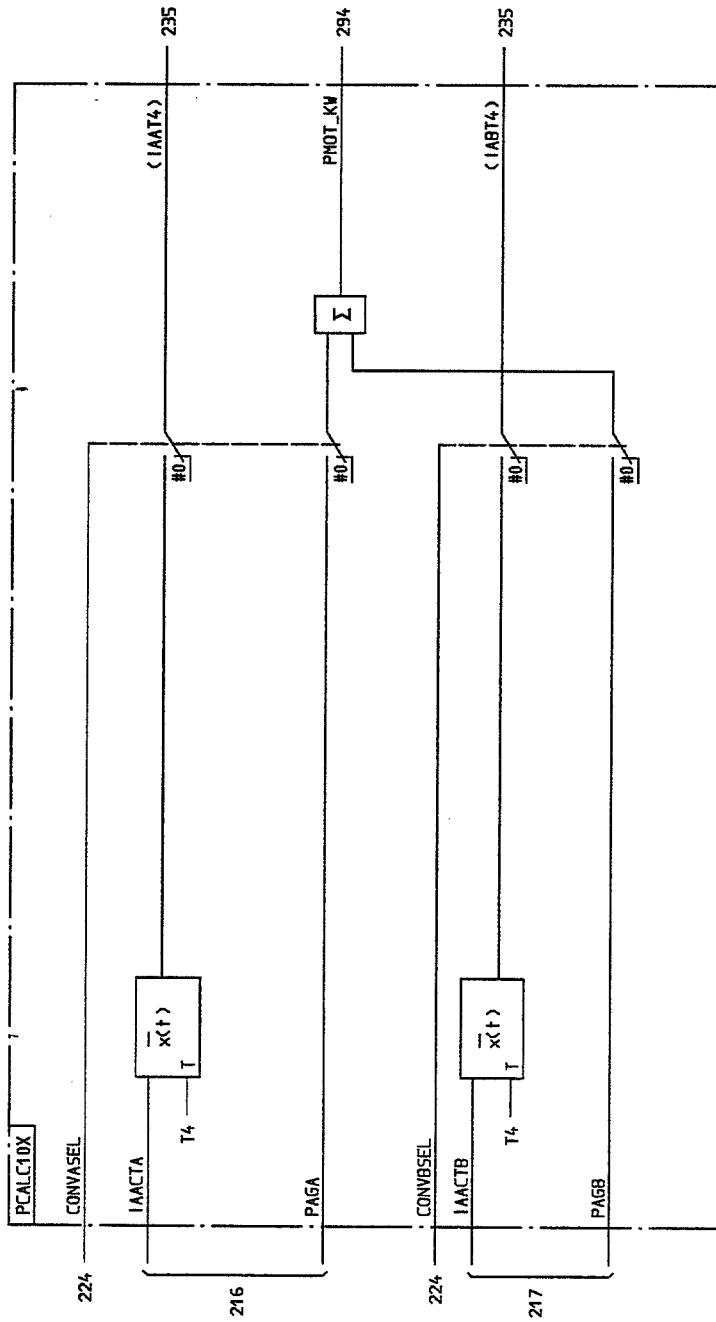
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Approved	93 08 20	5 KARLSSON	Rev Ind	Rev Ind	Sheet	219
PROGRAM DIAGRAM		PROGRAM DSRB01XX		Rev Ind	Cont	223
Based on		Revision		Rep Date: DR/DKK		
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MECHANICAL POWER CALCULATION



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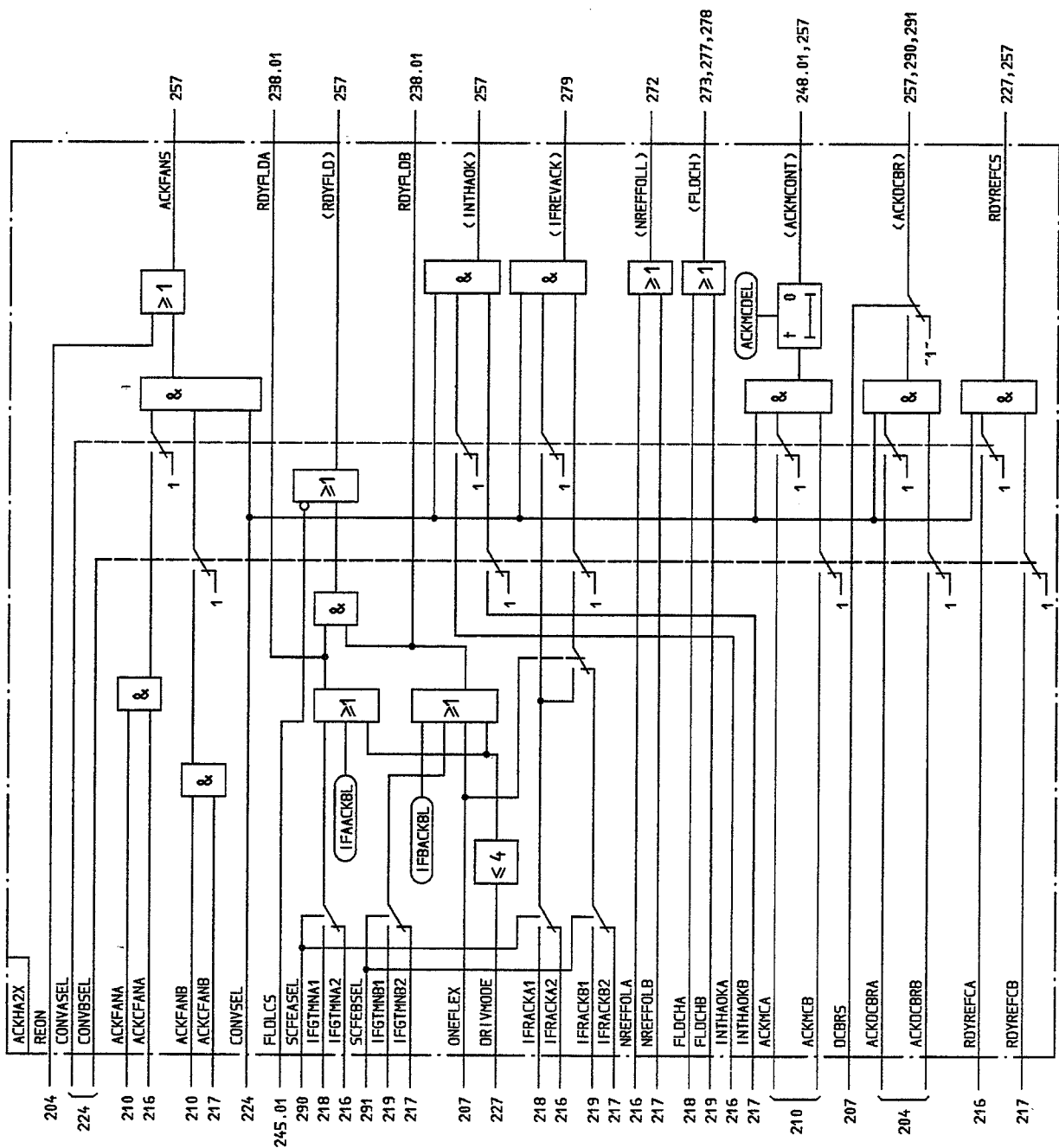
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SYMBOL ID / D: 3ASD489306C163:226/EN

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Approved	93 08 20	S KARLSSON	Rev Id	Rev Id	Rev Id
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PROGRAM DSRB01XX			Rev No	Rev No	Rev No
Based on			Rev No	Rev No	Rev No
DR/DKK			Rev No	Rev No	Rev No
3ASD 489306C163			Rev No	Rev No	Rev No
ABB ABB Industrial Systems			Rev No	Rev No	Rev No
Temp dupl. DRI/DKK			Rev No	Rev No	Rev No
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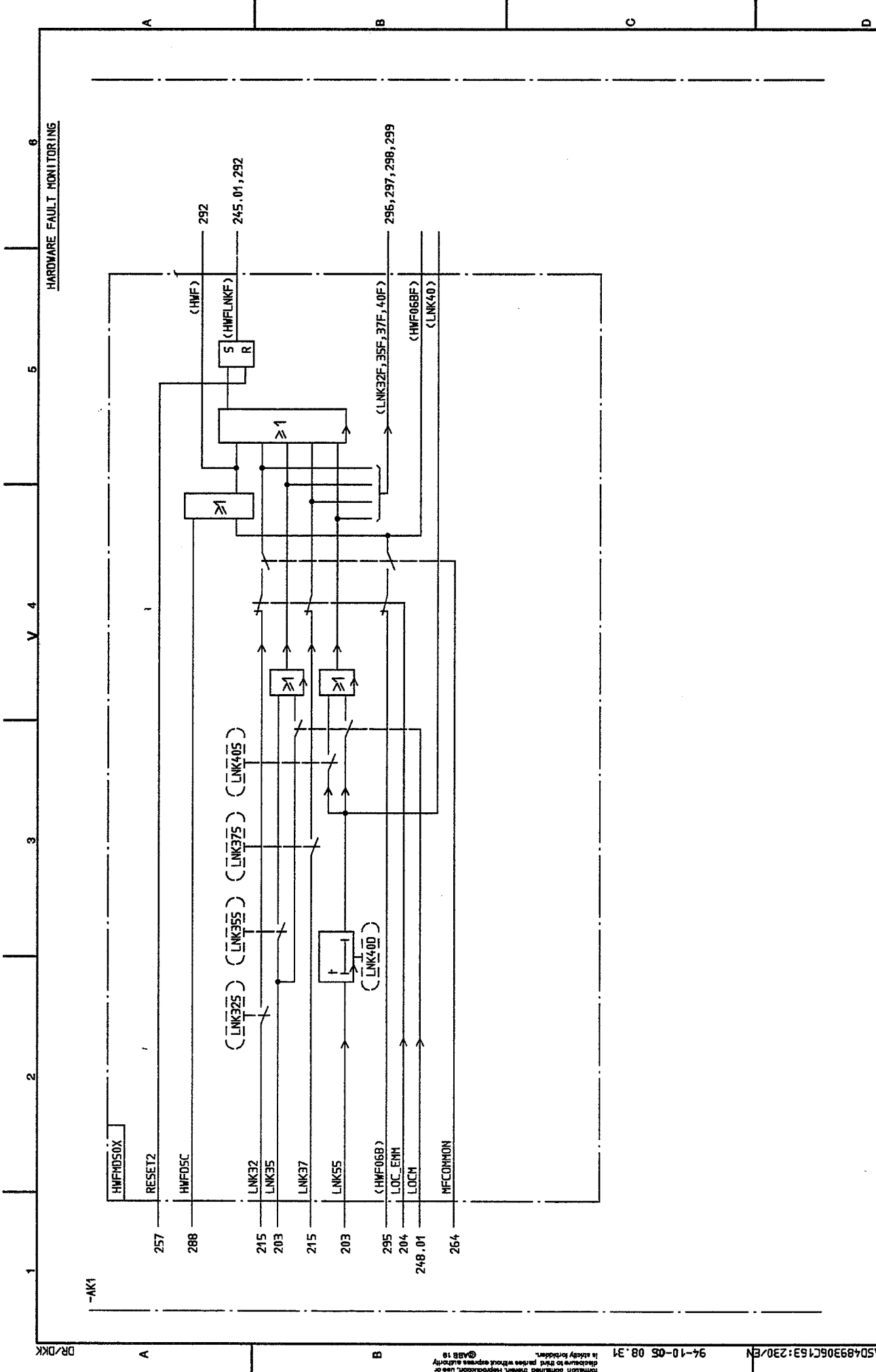
Prepared 93 08 20 S. SVENSSON
Approved 93 08 20 S. KARLSSON

PROGRAM DIAGRAM
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HARDWARE FAULT MONITORING

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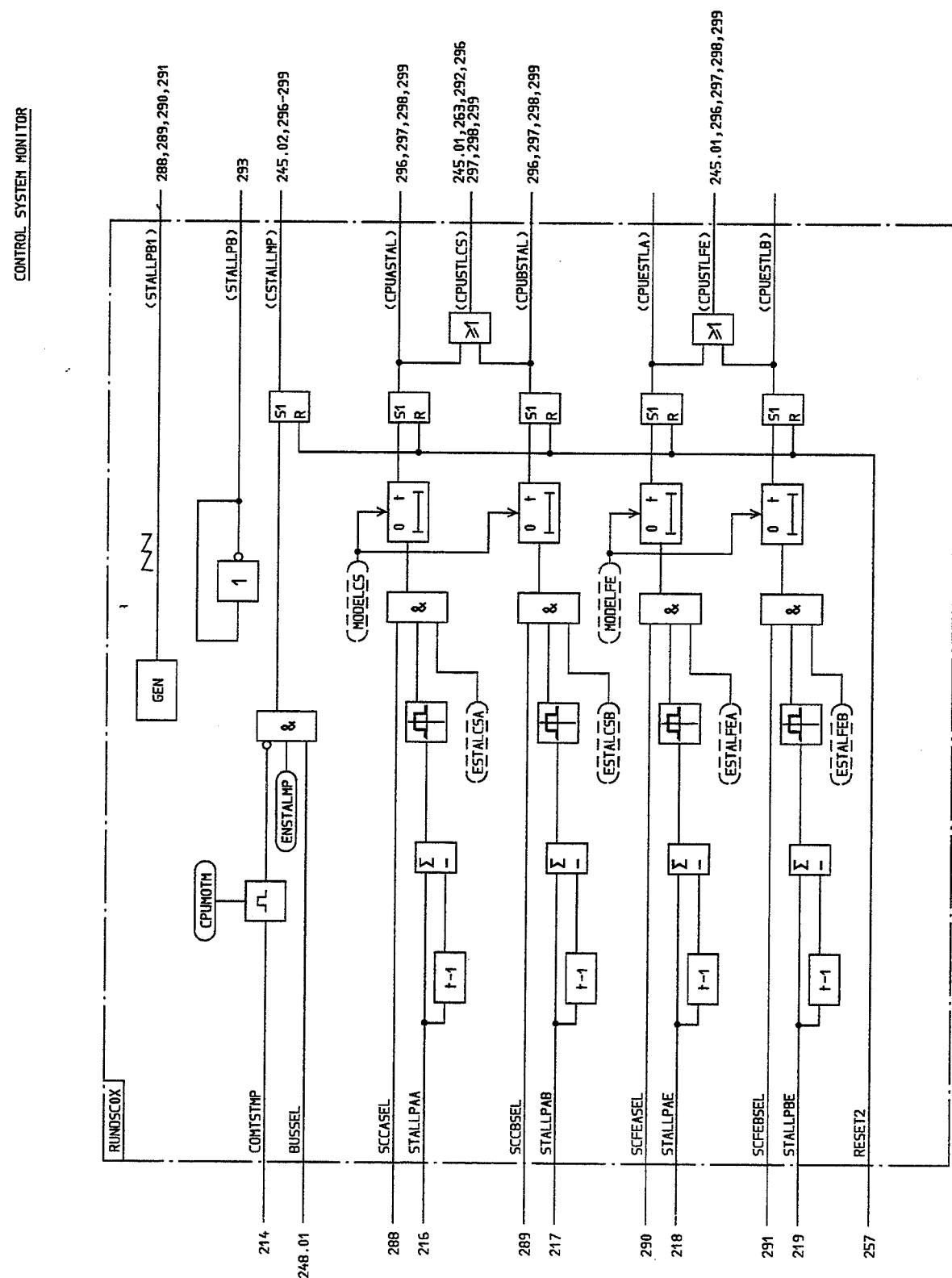
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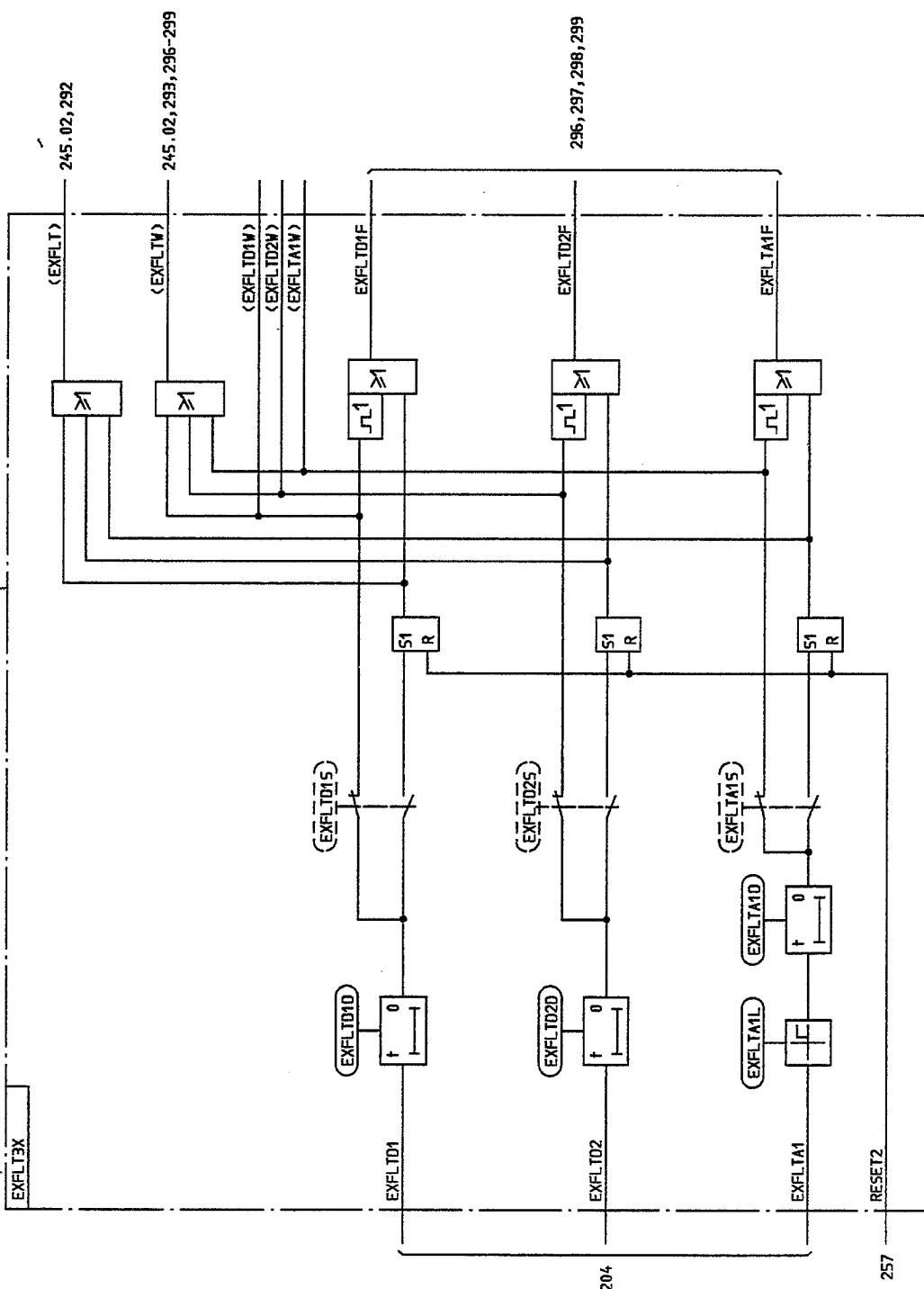
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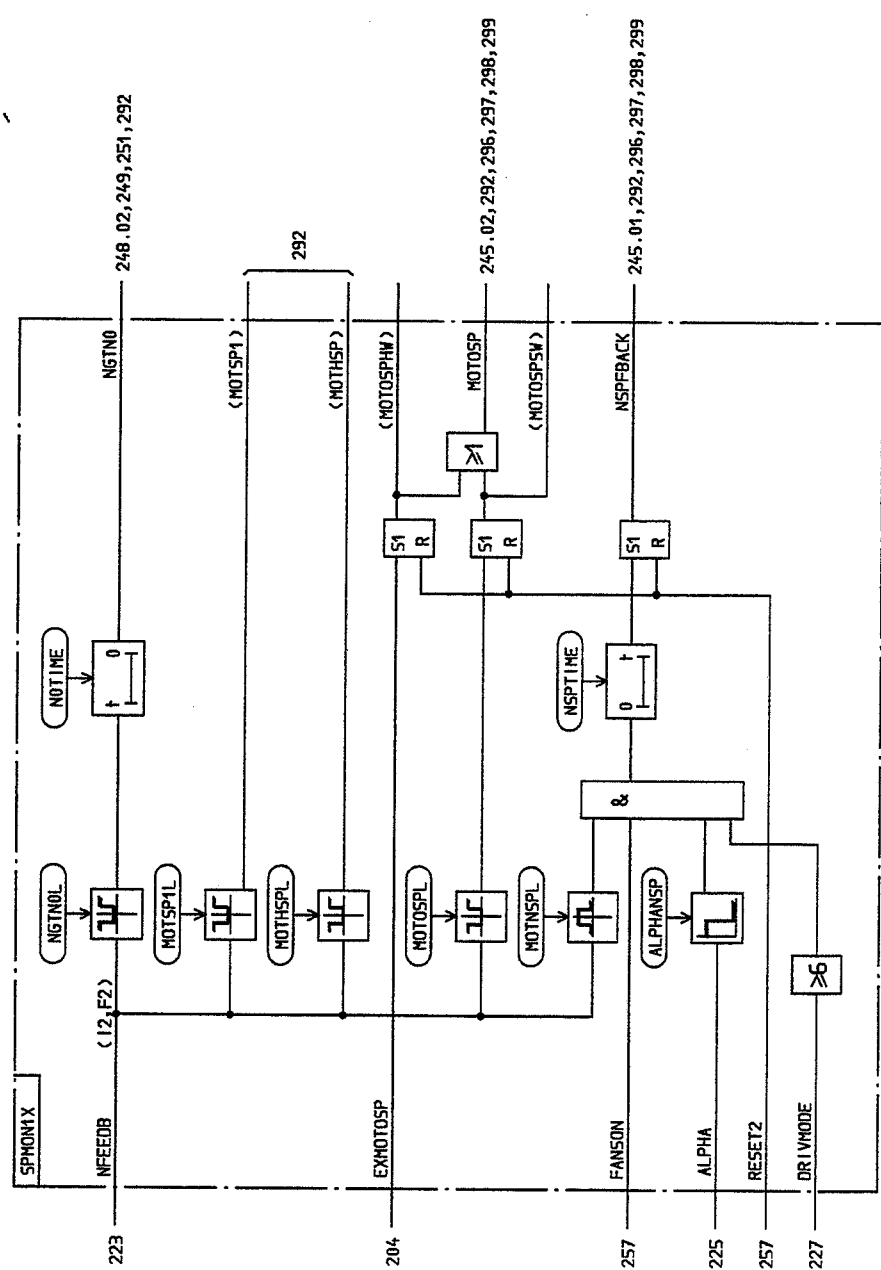
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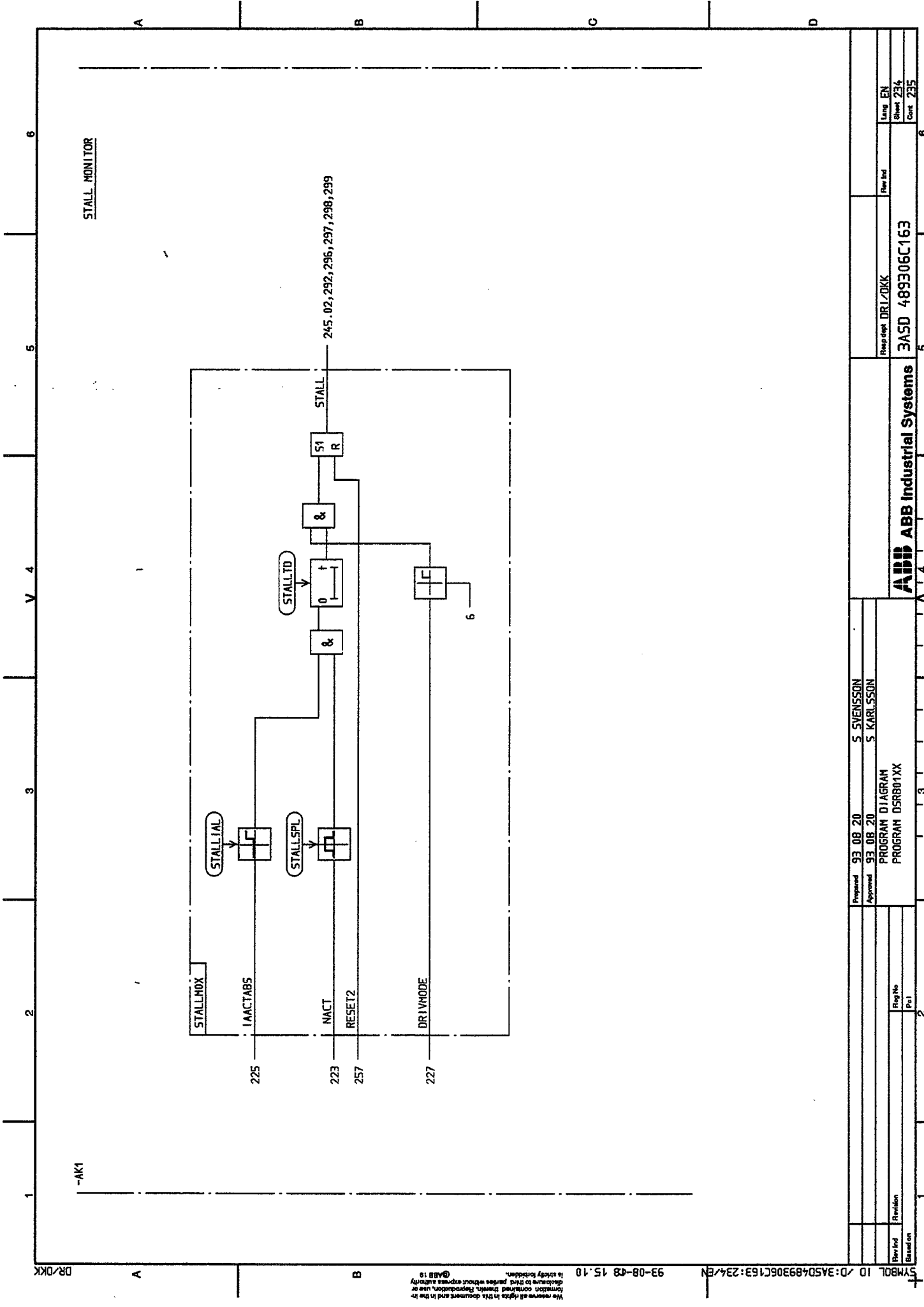
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Prepared 93 08 20 S. SVENSSON
Approved 93 08 20 S. KARLSSON
PROGRAM DIAGRAM
PROGRAM DSR801XX

ABB Industrial Systems
3ASD 489306C163

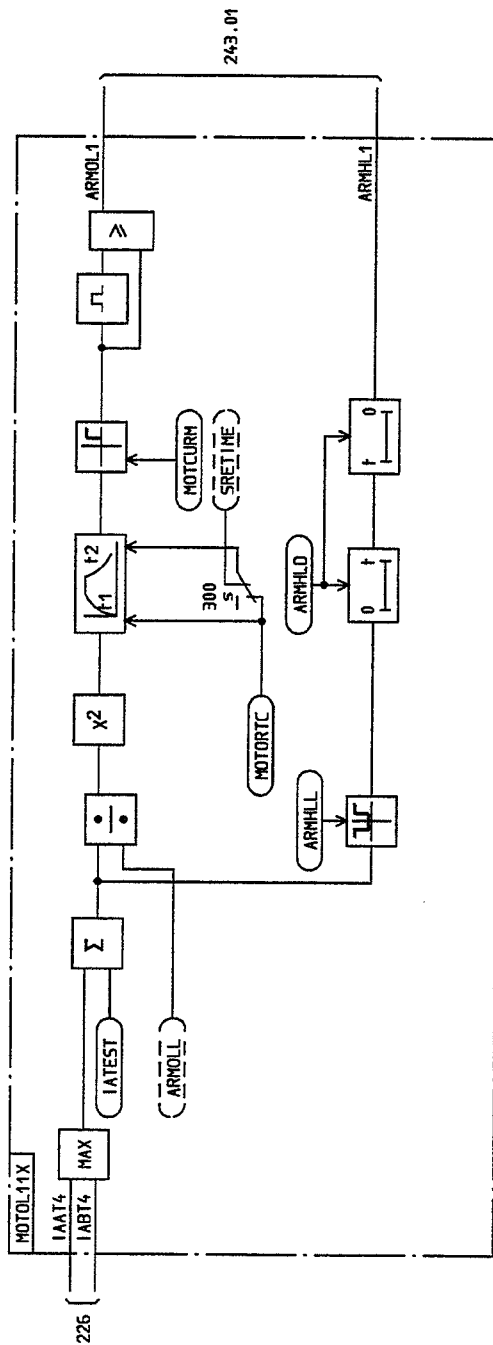
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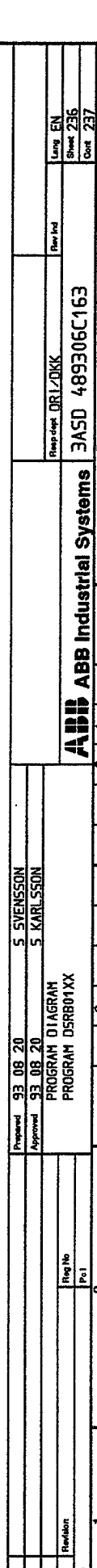
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Count	235		Rev Ind	Lang	EN

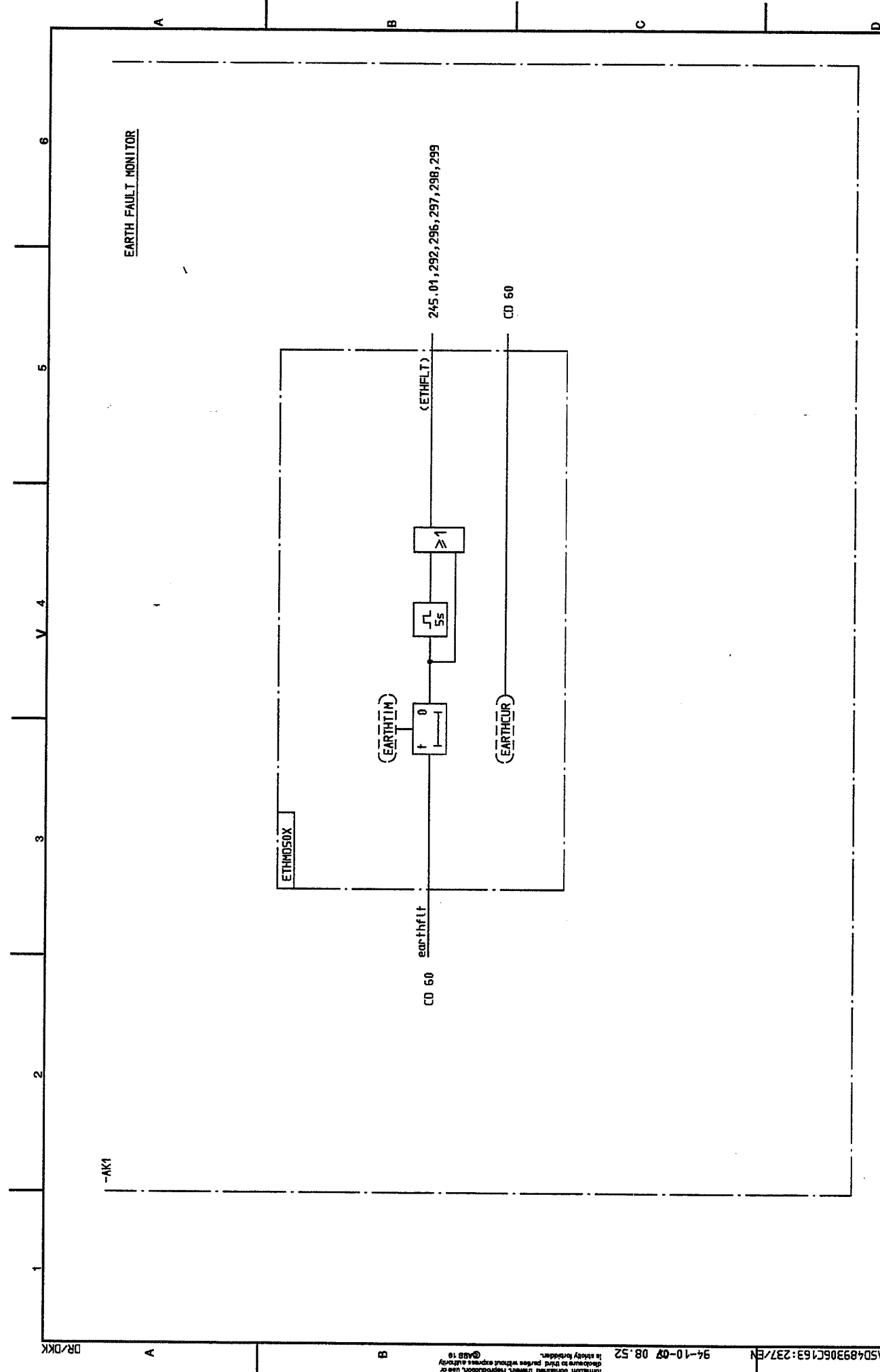
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MOTOR OVERLOAD MONITOR



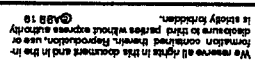
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Approved	93 08 20	S KARLSSON	Flow led	Sheet	235
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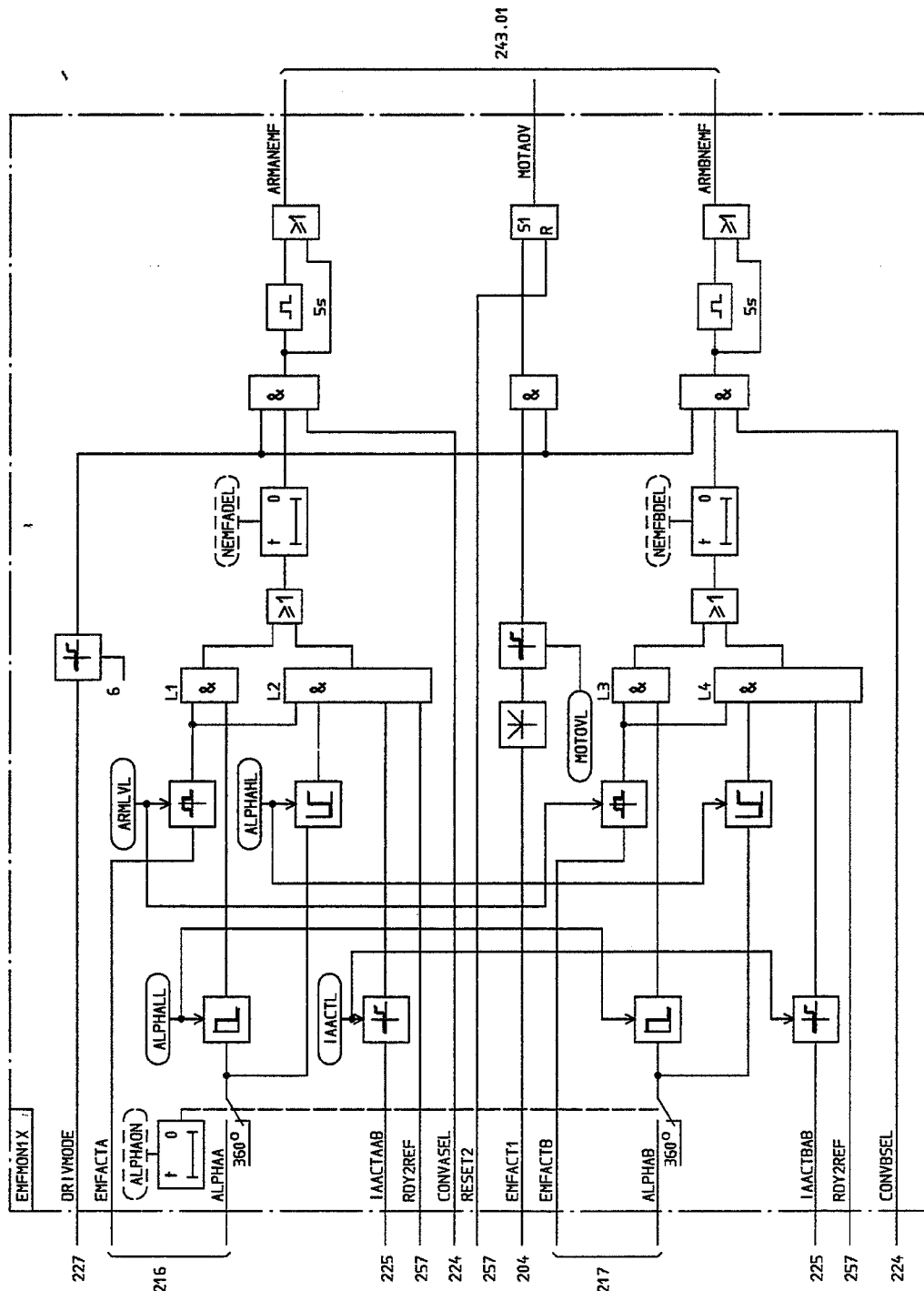
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Revised	Revision	Reg No	Per No	PROGRAM DSRB01XX		Based on	
Deep dept. DRI/DKK		3ASD 489306C163		Lang EN		Sheet 237	
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Approved 93.08.20 5 KARLSSON

PROGRAM DIAGRAM
PROGRAM D5R801XX

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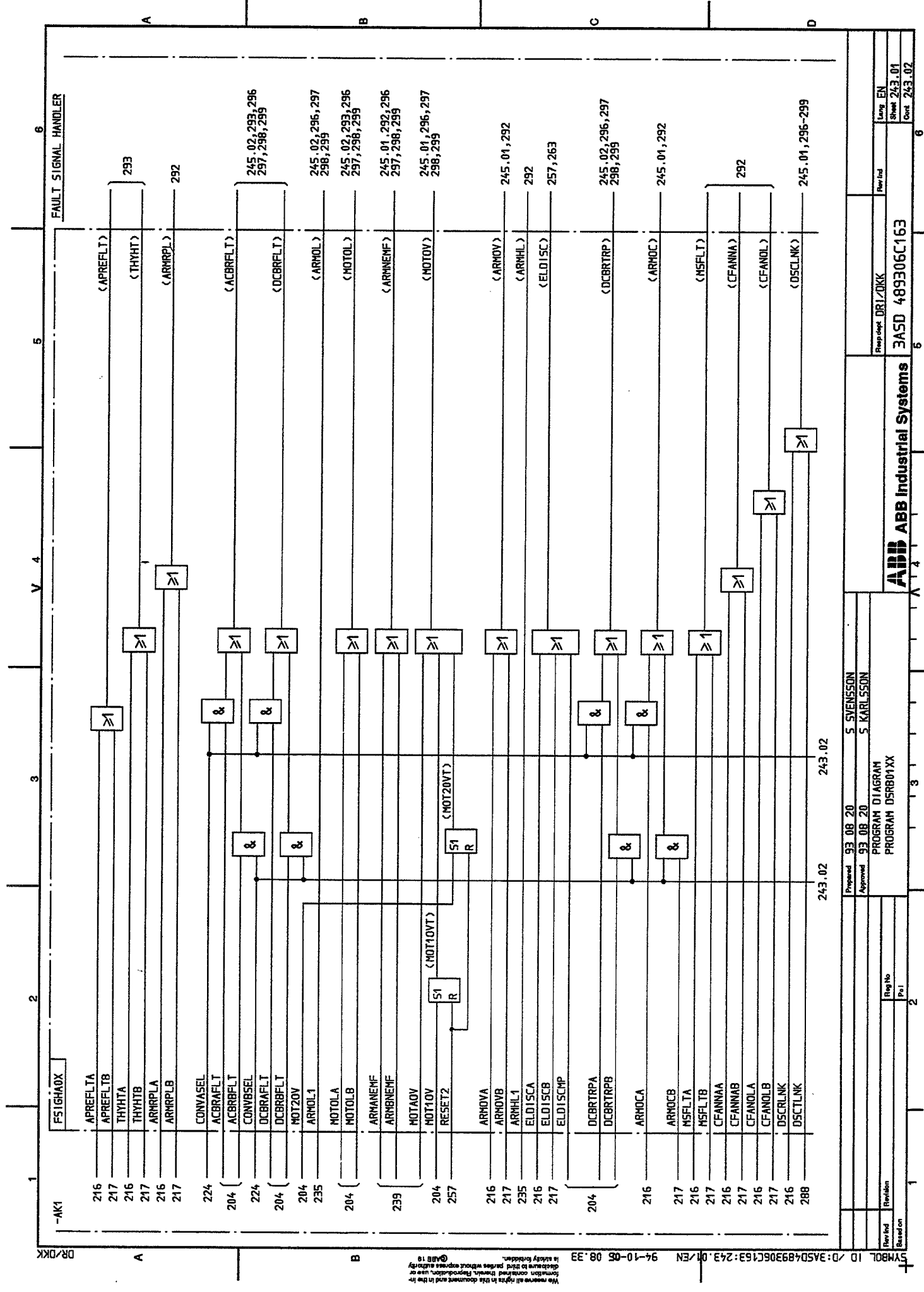
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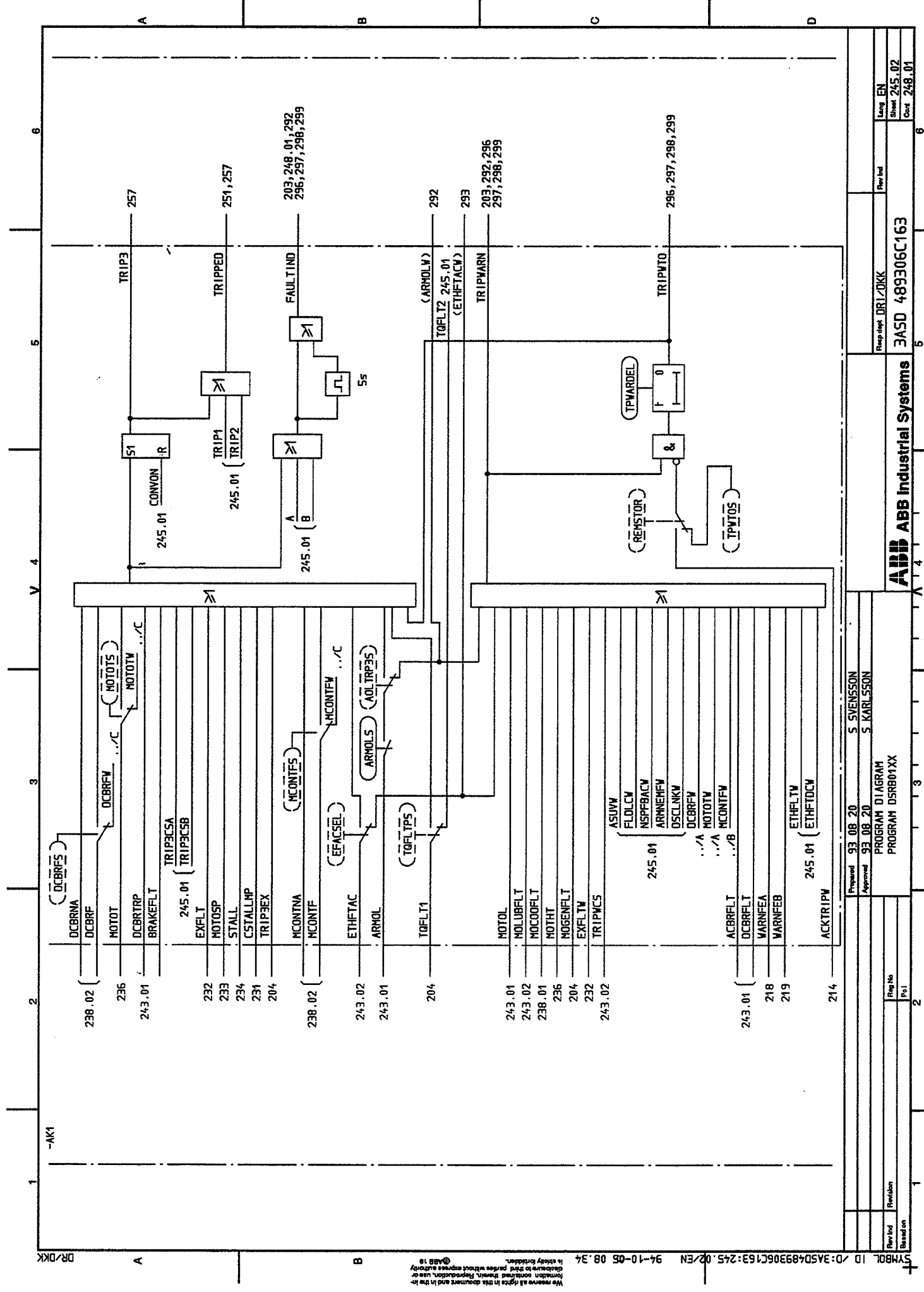
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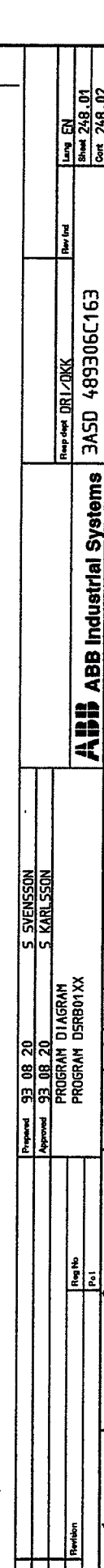
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3ASD 489306C163

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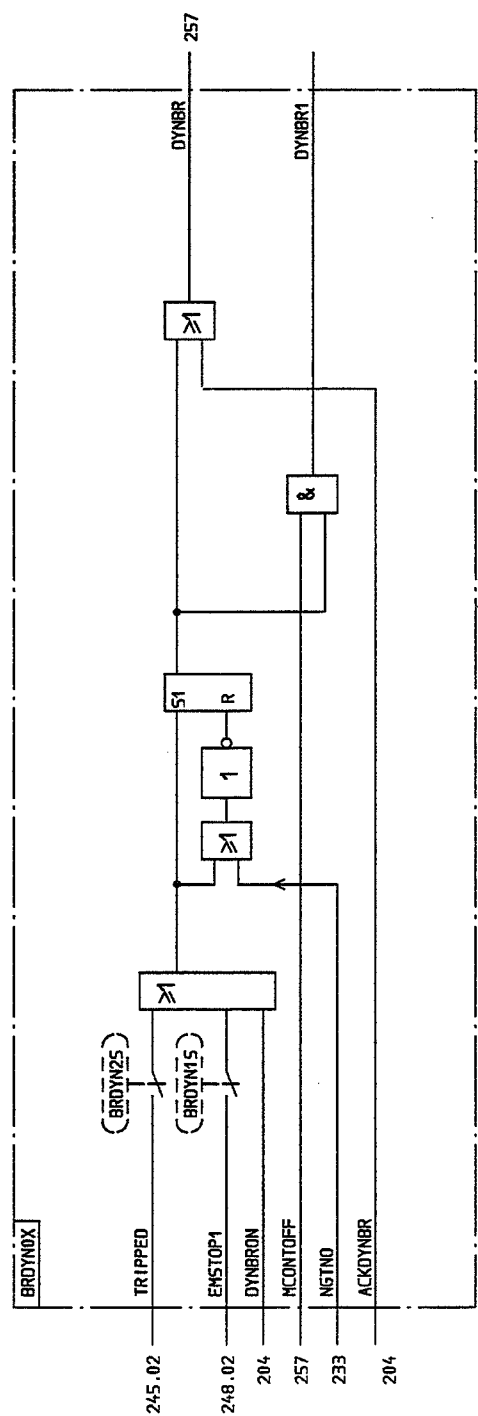
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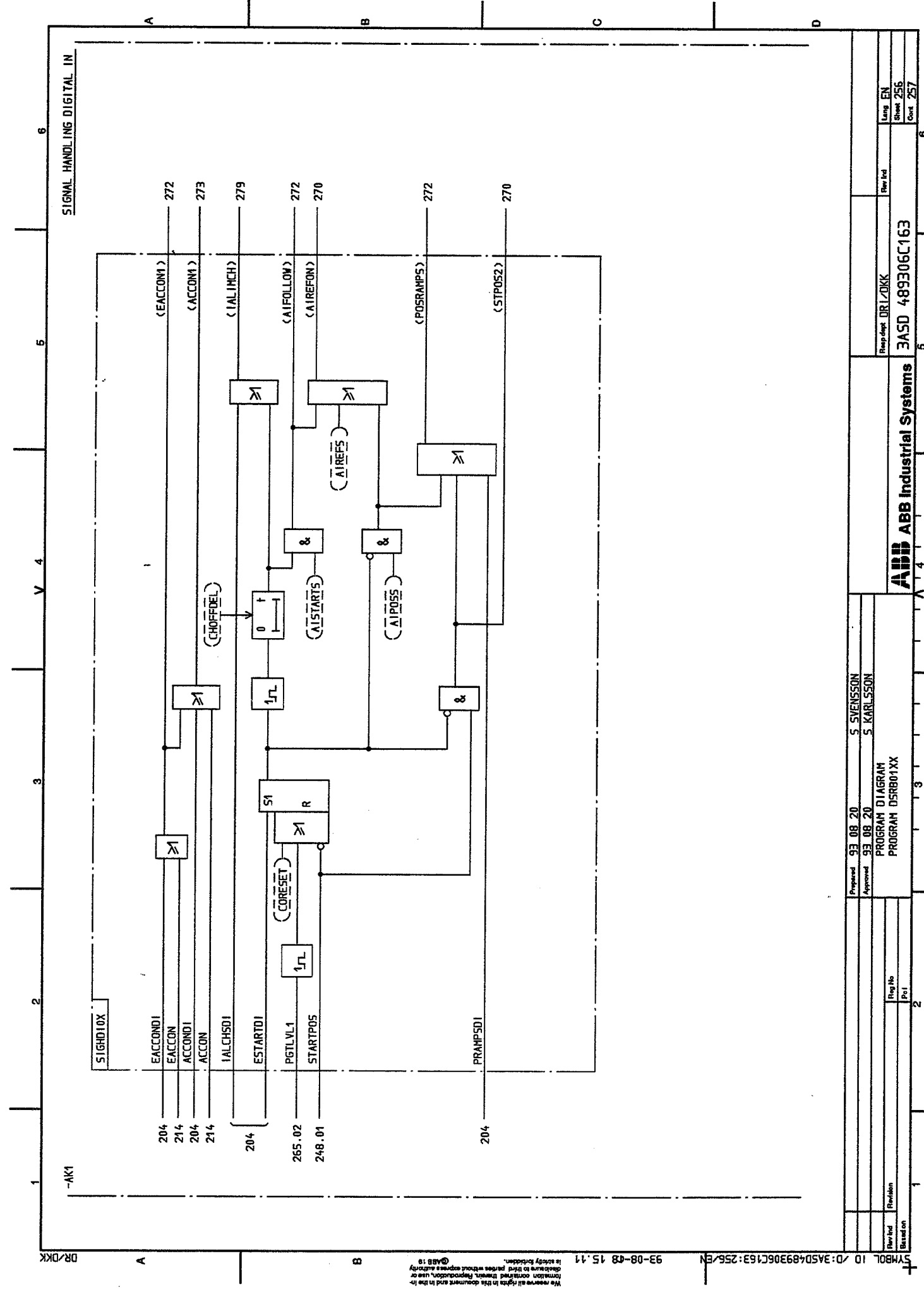




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Prepared 93 08 20 S SVENSSON		New Ed		Lang EN	
Approved 93 08 20 S KARLSSON		New Ed		Sheet 251	
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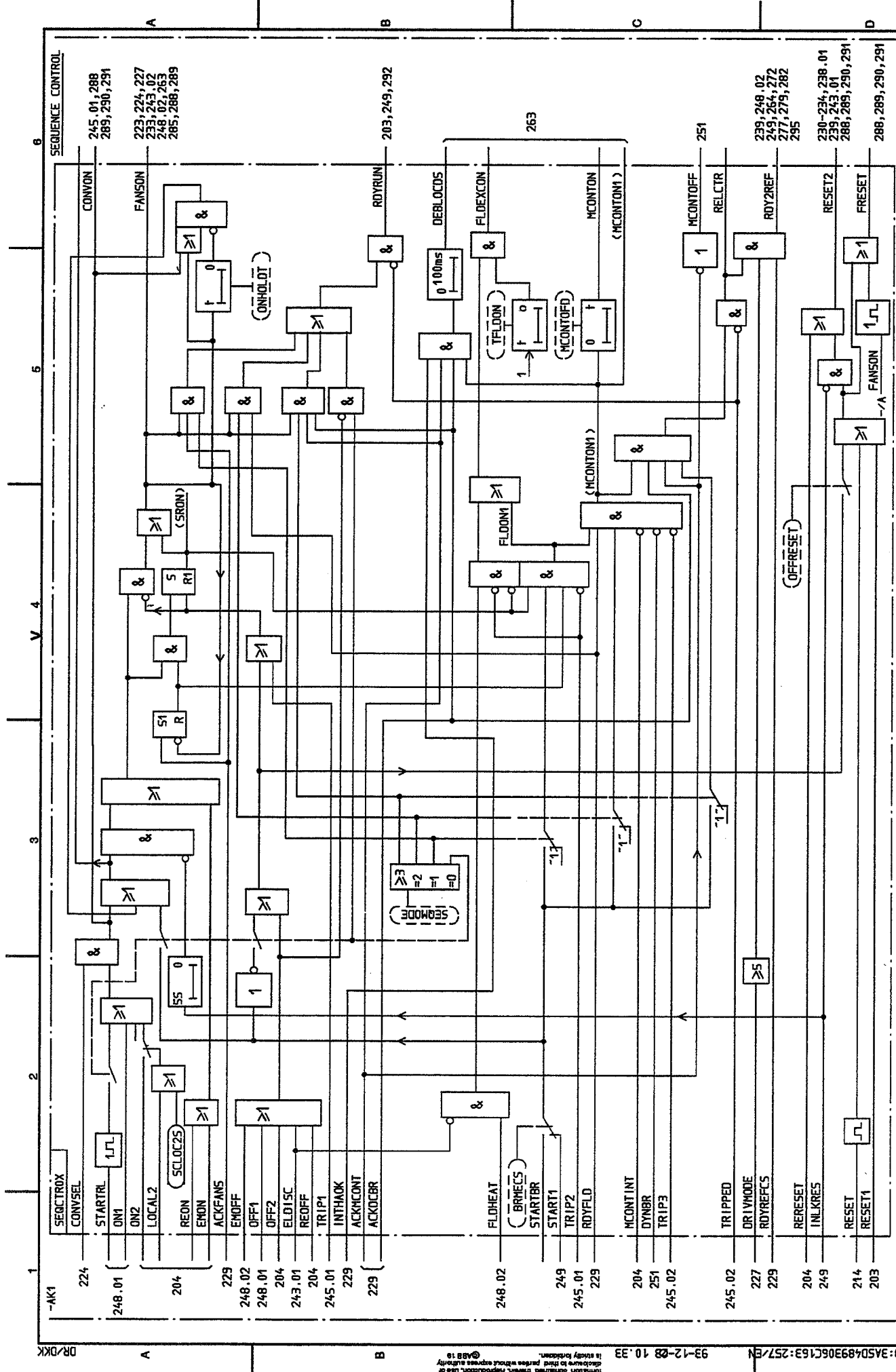


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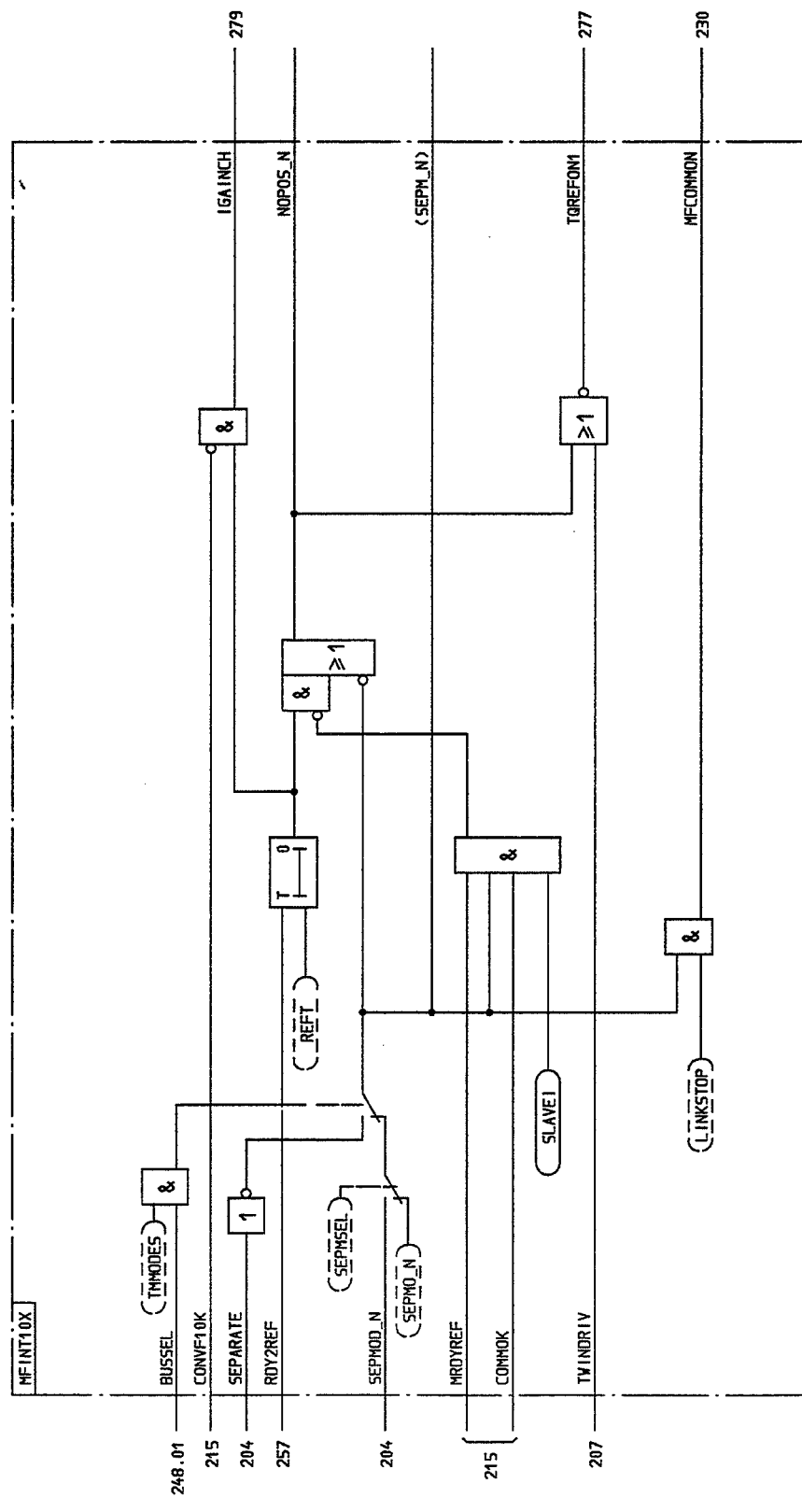
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Revised	Division	Reg No	2
Based on	Pc 1		
Prepared	93 08 20	S SVENSSON	6
Approved	93 08 20	S KARLSSON	6
PROGRAM DIAGRAM PROGRAM DSRB01XX			
ABB ABB Industrial Systems			
3ASD 489306C163			
Resp dept	DR/DKK	Rev led	
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Based on	Based on	Based on	Based on	Based on	Based on	Based on	Based on
Proposed 93 08 20		Approved 93 08 20		S. SVENSSON		S. KARLSSON	
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Revision		Revision		Revision		Revision	
Lang EN		Sheet 257		Cont 263		6	

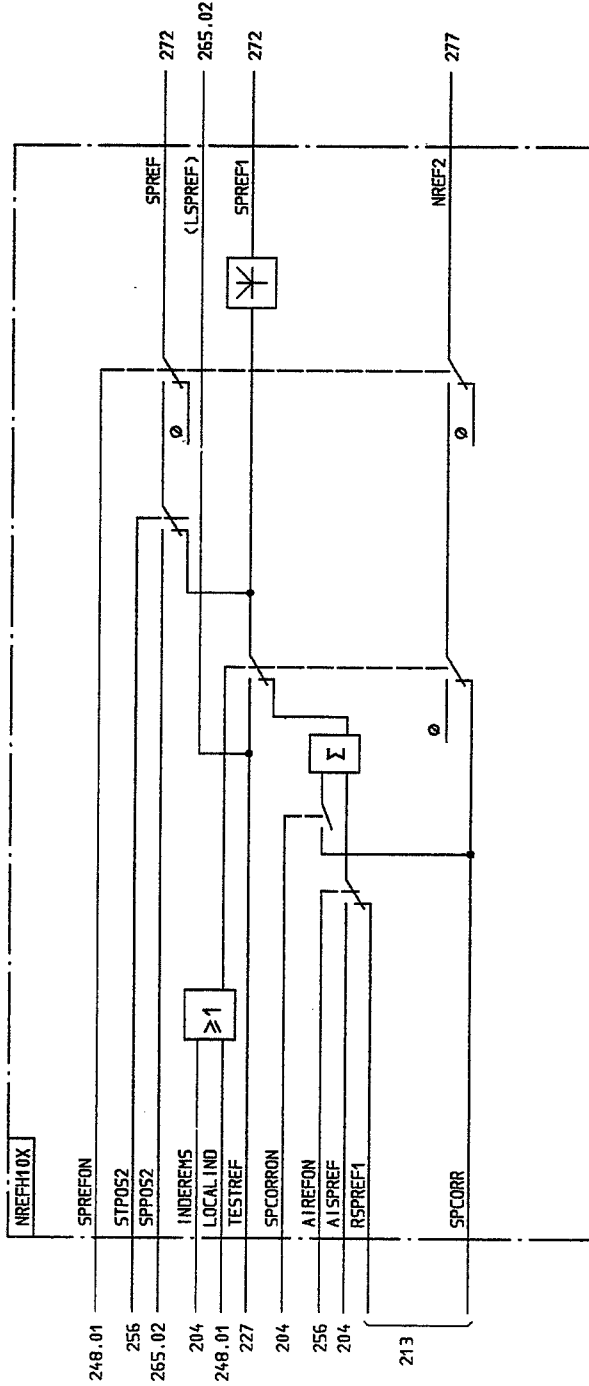
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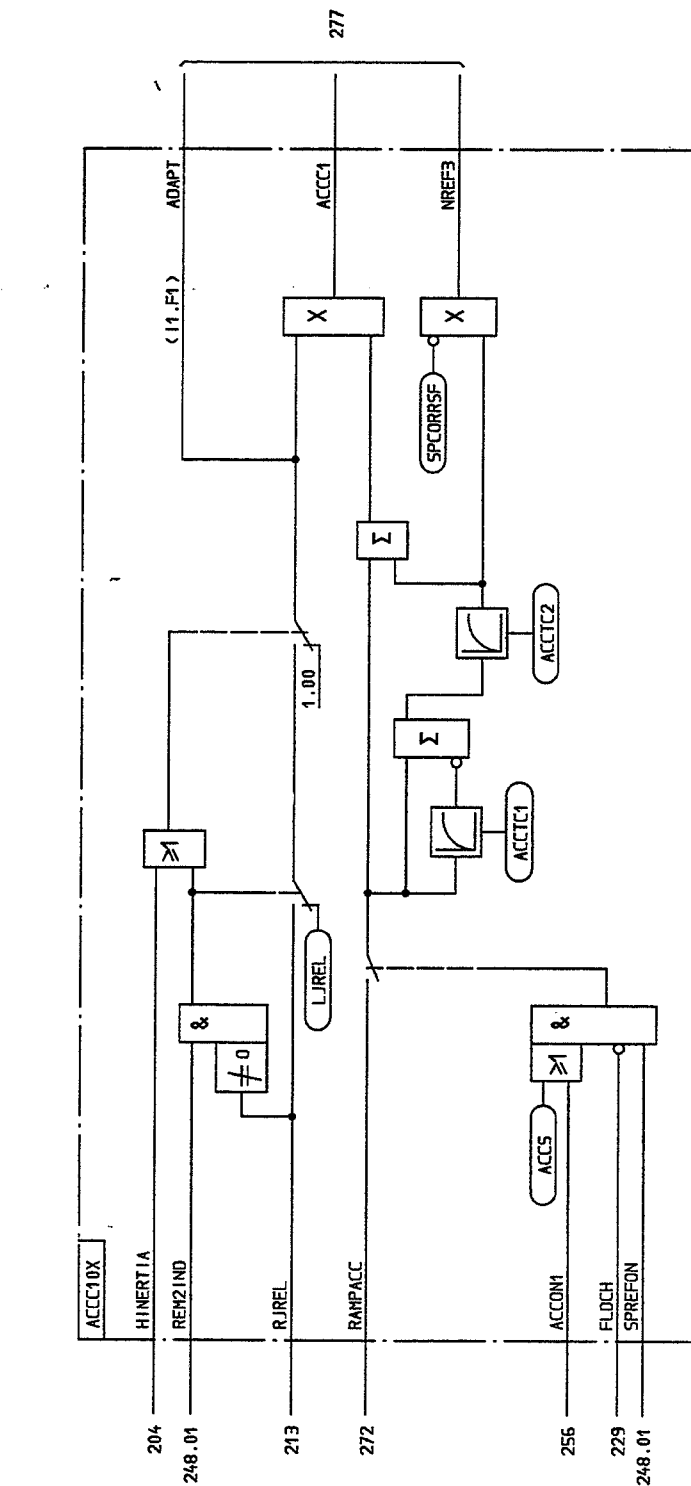
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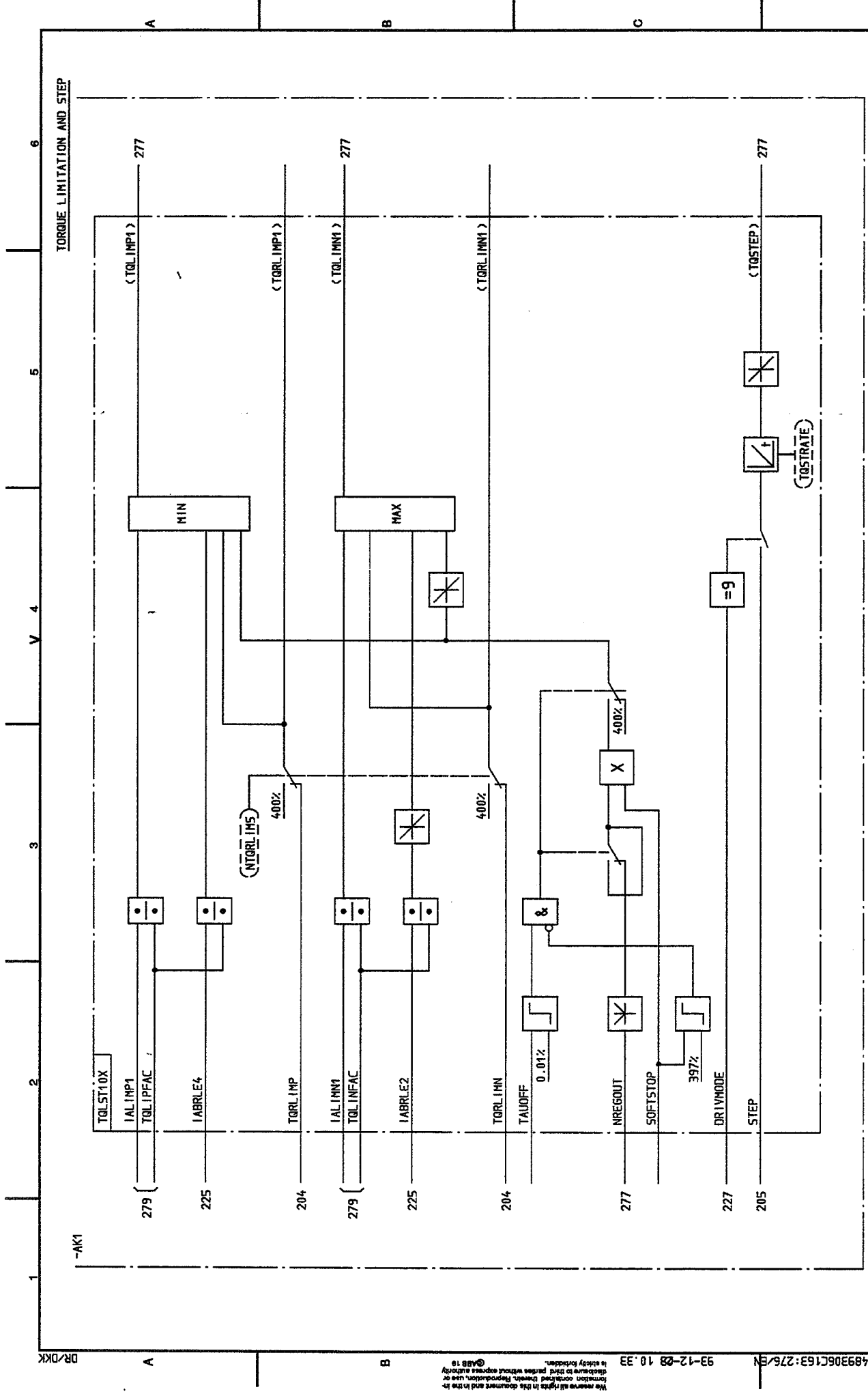
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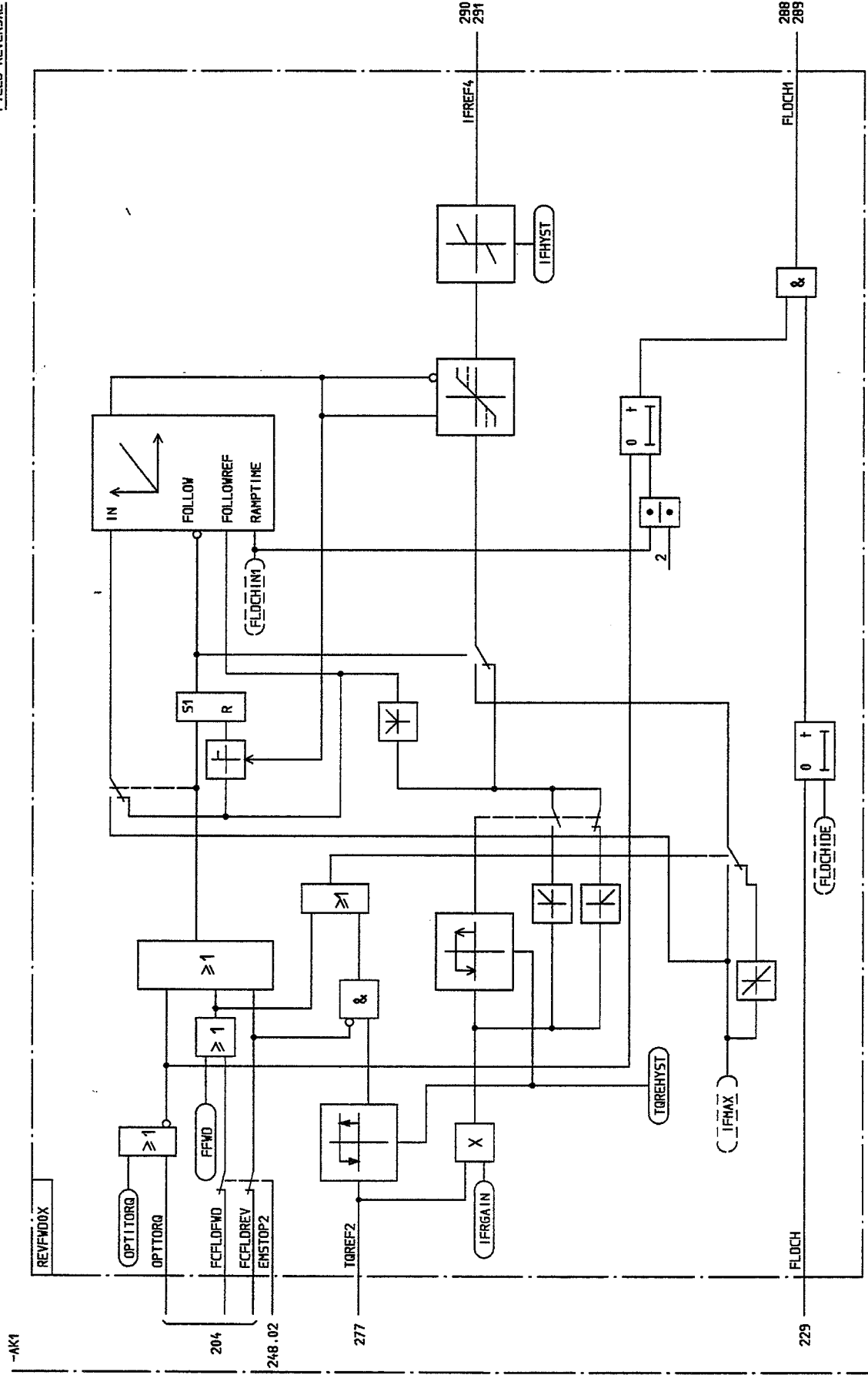
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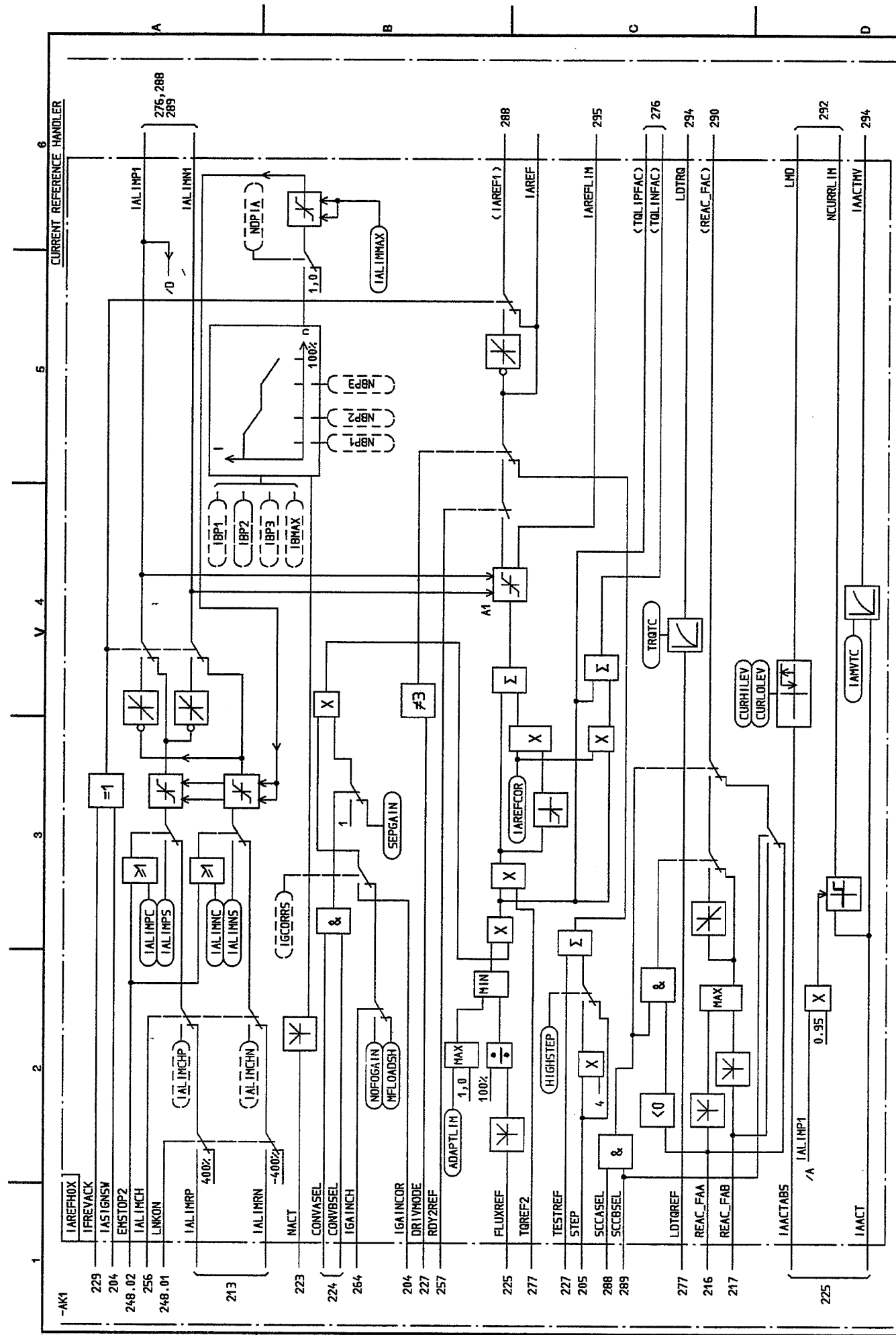


SYMBOL ID / 0:3ASD489306C163:276/EN		93-12-28 10.33		©ABB 19	
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Revised	Revised	Revised	Revised	Revised	Revised
Based on	Based on	Based on	Based on	Based on	Based on
PROGRAM DIAGRAM		PROGRAM DSR801XX		S. SVENSSON	
Approved		Approved		S. KARLSSON	
Proposed		Proposed		S. SVENSSON	
93 08 20		93 08 20		93 08 20	
ABB ABB Industrial Systems		3ASD 489306C163		Rev. EN	
Rev. EN		Rev. EN		Rev. EN	
Sheet 276		Sheet 276		Sheet 276	
Cont 277		Cont 277		Cont 277	

FIELD REVERSAL

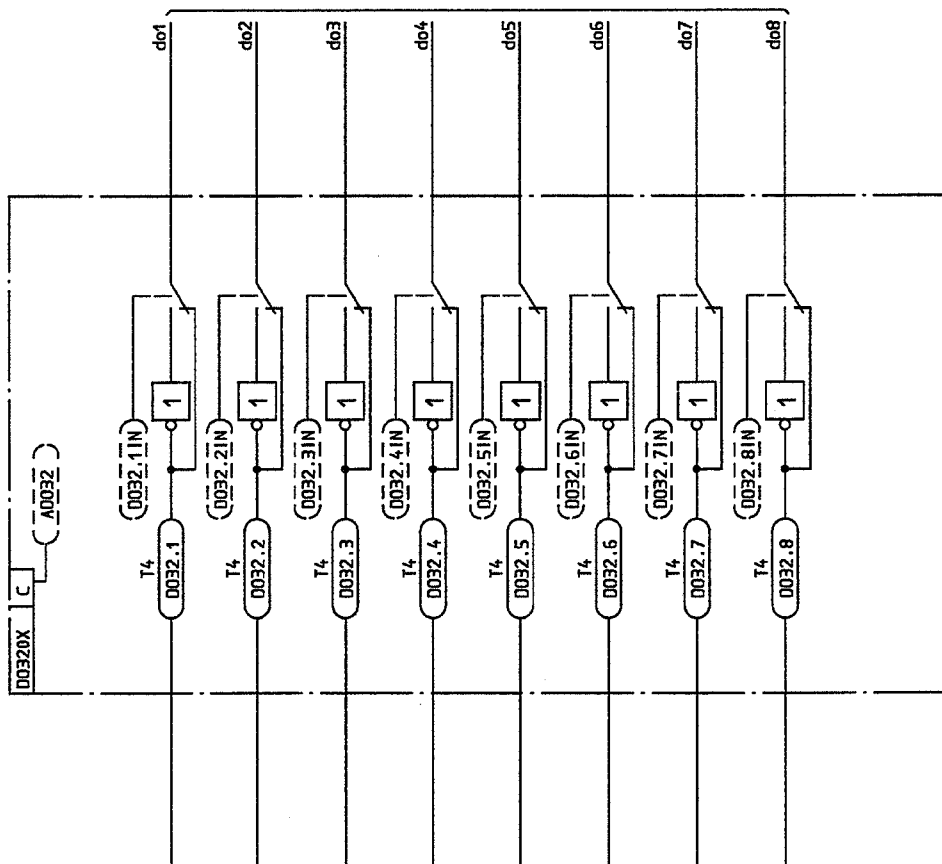


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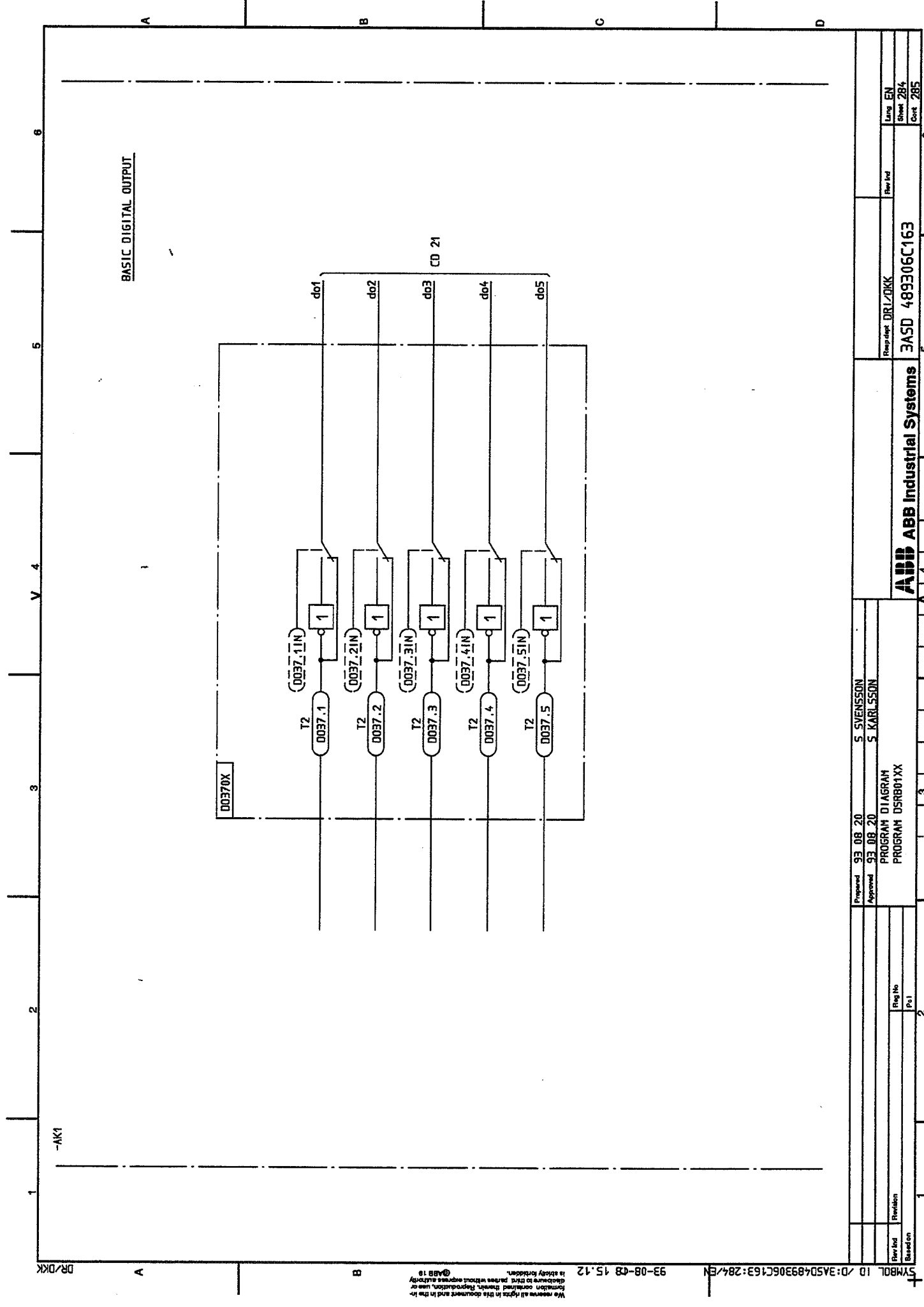


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Approved	93.08.20	5 SVENSSON	5 KARLSSON	Program	DSR801XX	Revision	1
ABB ABB Industrial Systems		3ASD 489306C163		Rep. det. DRI/DKK		Lang	EN
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						Cont	283

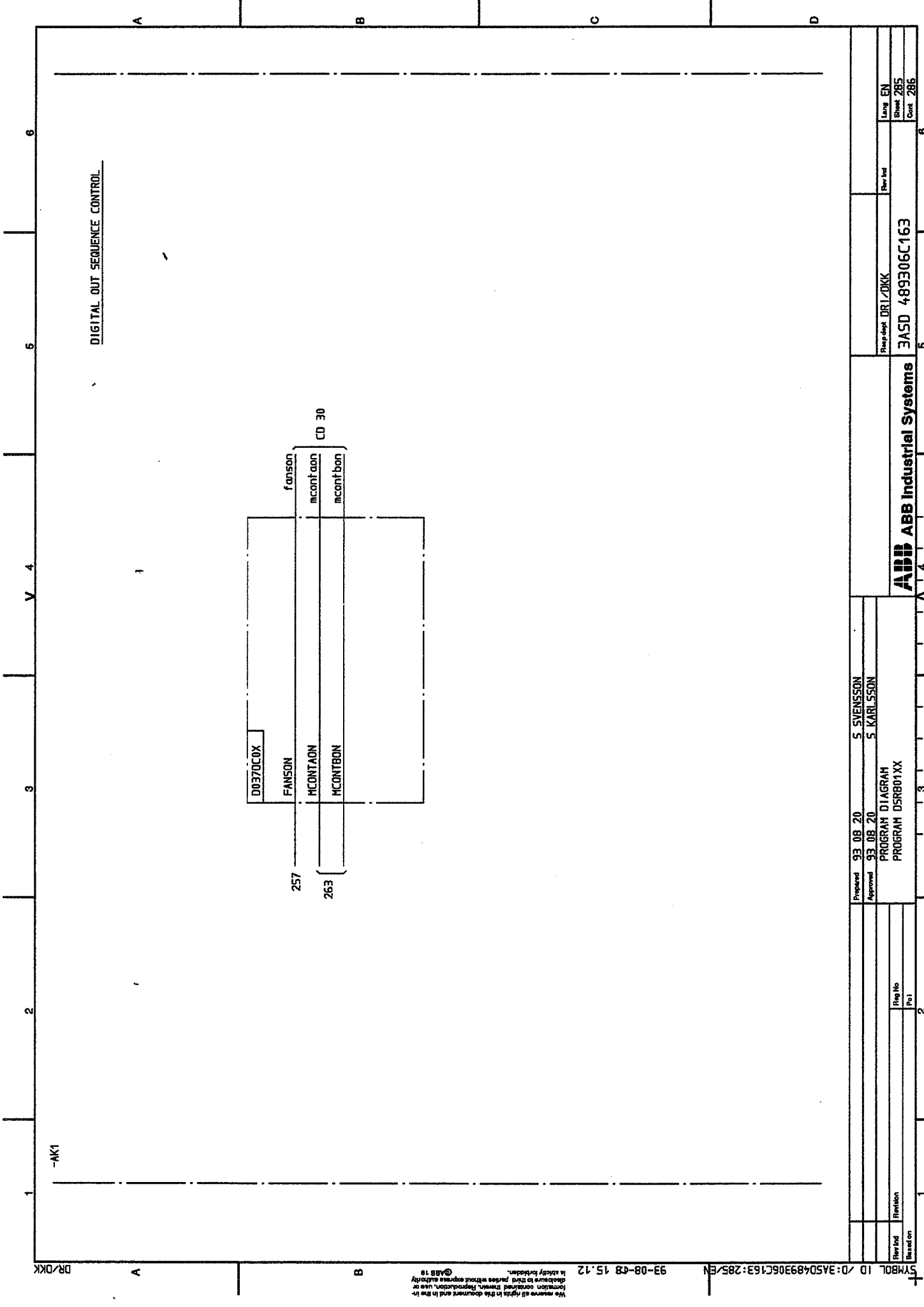
DIGITAL OUTPUT EXPANSION UNIT



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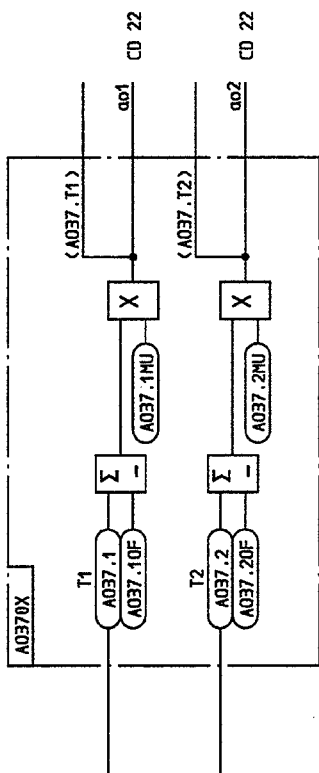


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Revision		Revision		Revision	
Rev No		Rev No		Rev No	
Page 1		Page 1		Page 1	
PROGRAM DSRB01XX		PROGRAM DIAGRAM		PROGRAM DIAGRAM	
S. KARLSSON		S. SVENSSON		S. SVENSSON	
Approved 93-08-20		Approved 93-08-20		Approved 93-08-20	
Proposed 93-08-20		Proposed 93-08-20		Proposed 93-08-20	
ABB ABB Industrial Systems		ABB ABB Industrial Systems		ABB ABB Industrial Systems	
3ASD 489306C163		3ASD 489306C163		3ASD 489306C163	
Lang EN		Lang EN		Lang EN	
Sheet 284		Sheet 284		Sheet 284	
Cont 285		Cont 285		Cont 285	

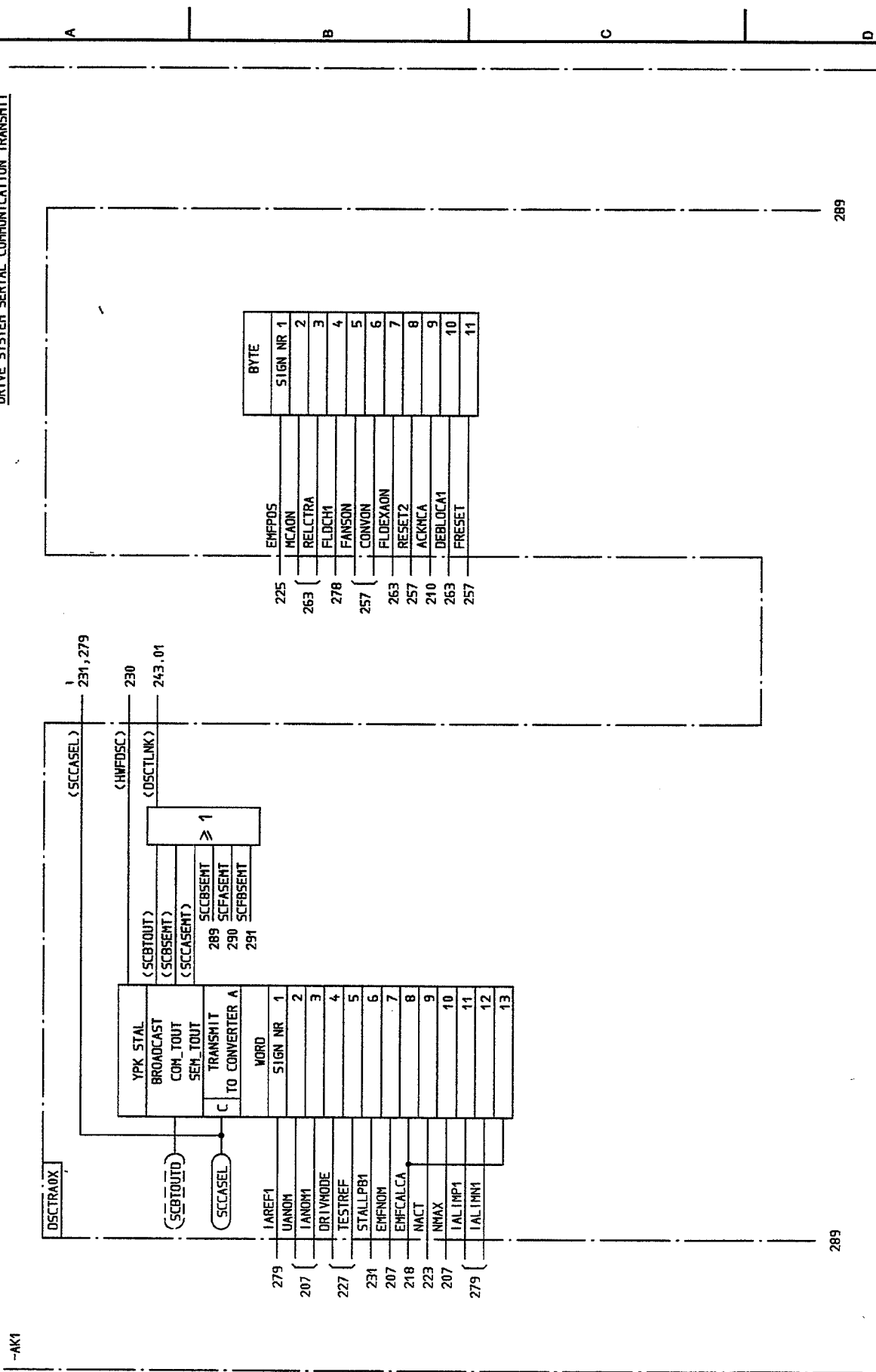




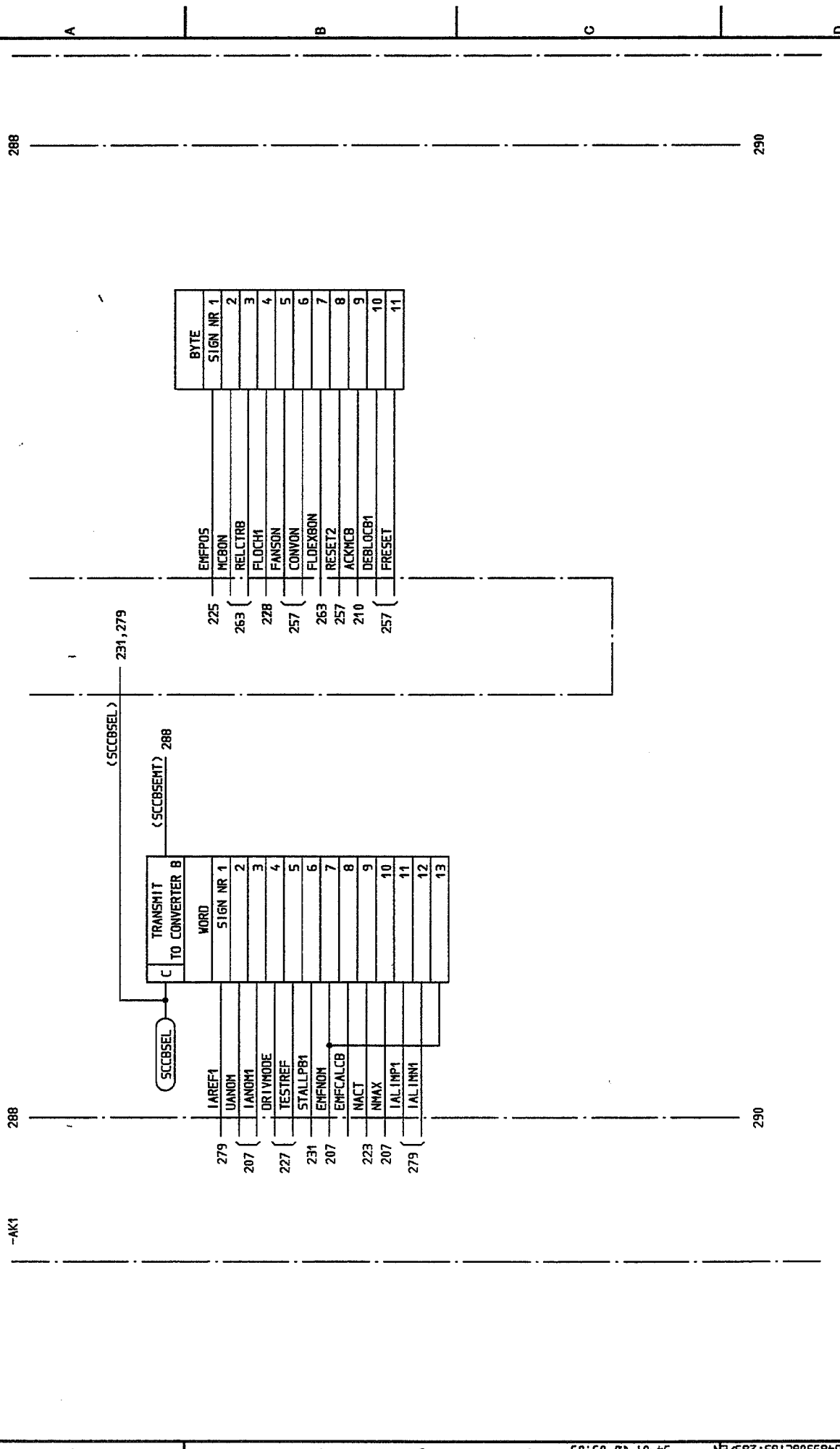
BASIC ANALOG OUTPUT



DRIVE SYSTEM SERIAL COMMUNICATION TRANSMIT



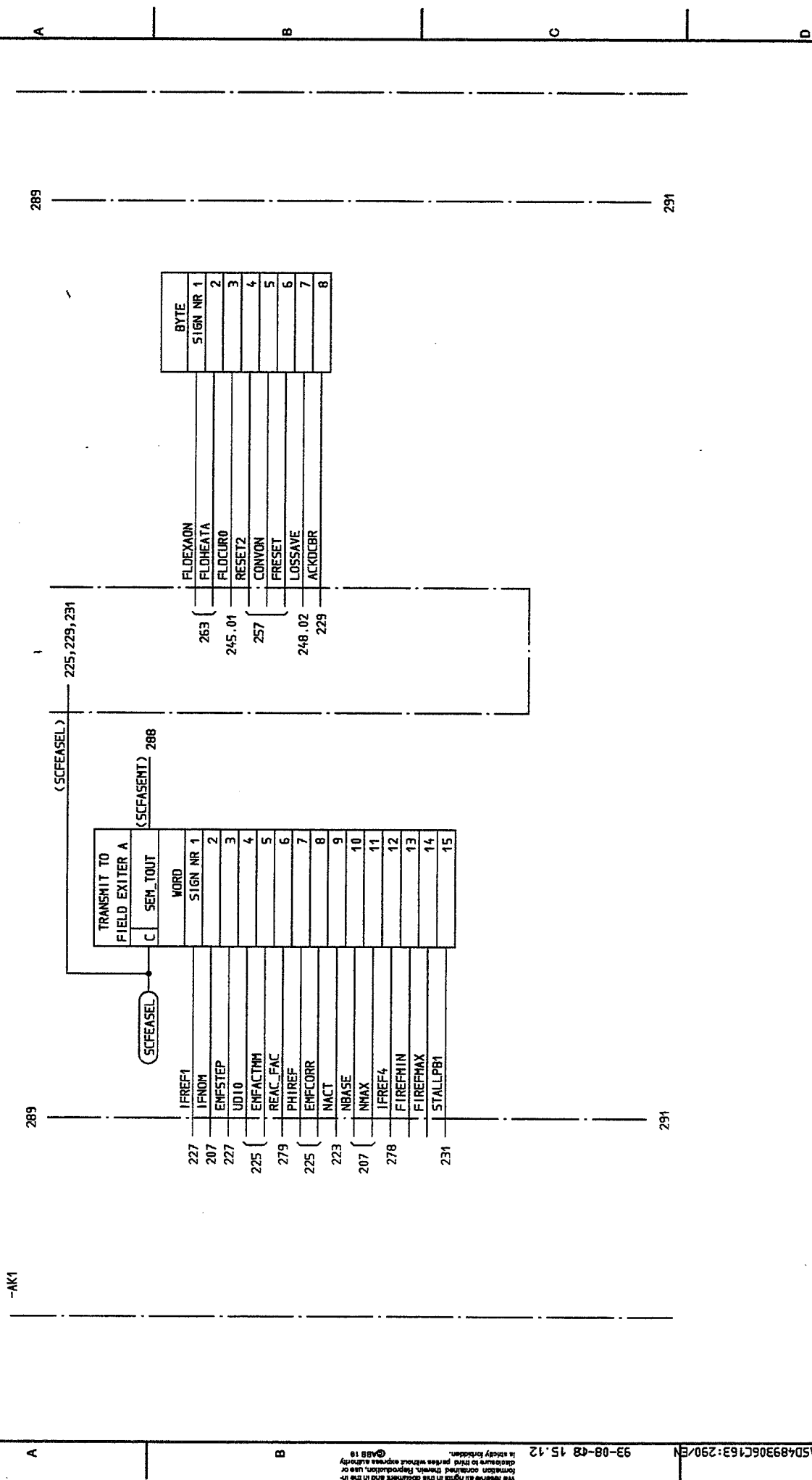
DRIVE SYSTEM SERIAL COMMUNICATION TRANSMIT



Prepared	93.08.20	S. SVENSSON	Resp. dept	DR1/DKK	Lang	EN
Approved	93.08.20	S. KARLSSON	Rev. Ind		Sheet	289
		PROGRAM DIAGRAM			Cont	290
		PROGRAM DSRB01XX				
Rev. Ind	Revision	Fig. No				
Based on	Fig. 1					

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DRIVE SYSTEM SERIAL COMMUNICATION TRANSMIT



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Prepared	93 08 20	S SVENSSON	Responsible DRI/DKK	3ASD 489306C163	Lang EN
Approved	93 08 20	S KARLSSON	Sheet 230		Sheet 230
Program	PROGRAM DIAGRAM				
Program	PROGRAM DSRB01XX				
Revision					
Revision					
Revision					

-AK1

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SYMBOL ID 70:3ASD489306C163:293/EN

Revision	Rev No	Rev Ind	Proposed	93 08 20	5 SVENSSON	5 KARLSSON	Reap Insp	DR1/DKK	Rev Ind	Lang	EN
Based on	Program	DSR801XX	PROGRAM DIAGRAM	PROGRAM DSR801XX						Sheet	293
										Cont	294

ABB ABB Industrial Systems
3ASD 489306C163

MASTER FIELD BUS COMMUNICATION
TRANSIT

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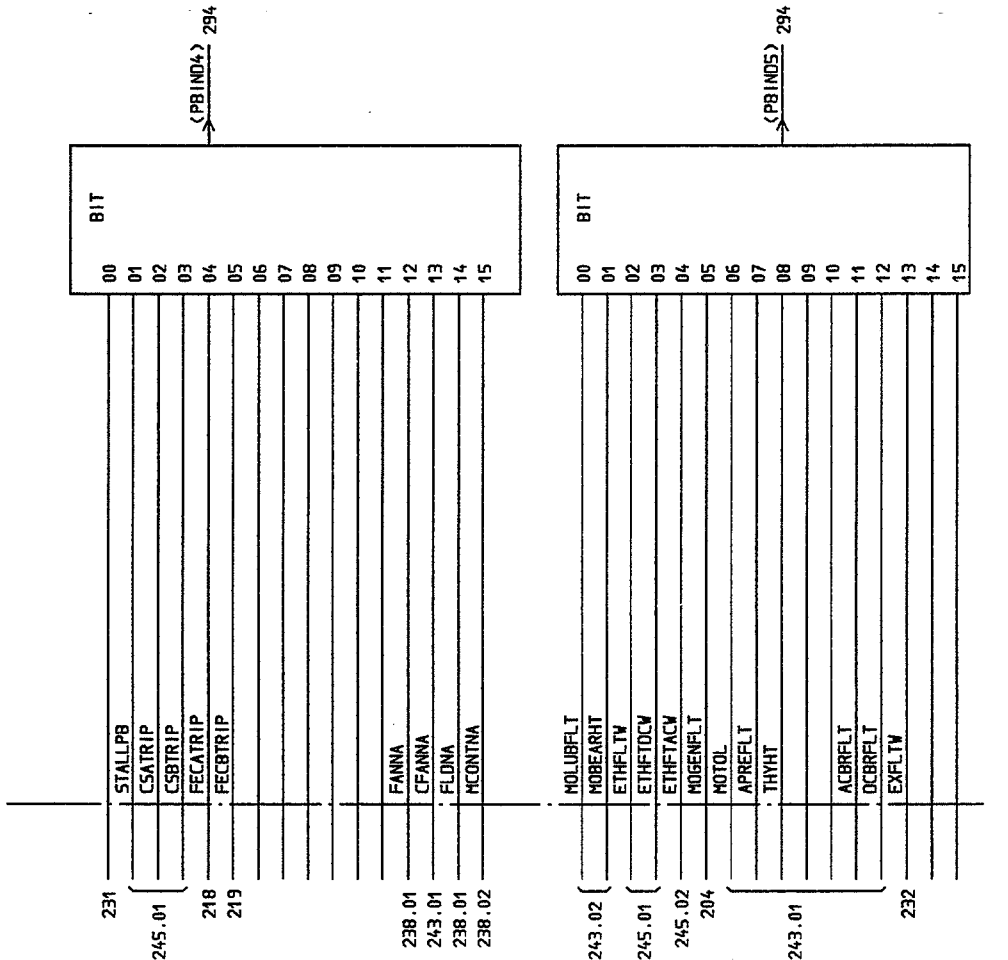
A

B

B

C

D



294

(PBIND5) 294

(PBIND4) 294

-AK1 LIST OF FAULT SIGNALS

TEXT OF FAULT	SIGNAL NAME	SHEET
AC ERDEFELER MOTOR	ETHFTAC	243.02
AC-SCHALTER FEHLER	ACBRFLT	243.01
ANTRIEB BLOCKIERT	STALL	234
AUSL V FREHRECHNER	TRIPMP	214
AUSL WARNUNG STROMRICHT	TRIPWT	
AUSL WARNUNGSZEIT ENDE	TRIPWTO	245.02
AUSL1 EXTERNER FEHLER	TRIP1EX	204
AUSL2 EXTERNER FEHLER	TRIP2EX	
AUSL3 EXTERNER FEHLER	TRIP3EX	204
BREMSE NICHT STEUERBAR	BRAKEFLT	
DC-SCHALTER AUSL SUNG	DCBTRTP	243.01
DC-SCHALTER FEHLER	DCBRFLT	204
DC-SCHALTER FEHLER	DCBRF	238.02
DC-SCHALTER NICHT ZU DREHMOMENT FEHLER	DCBRNA	238.02
ERDEFELER	TQFLT1	204
EXTERNER FEHLER D1	ETHFLT	237
EXTERNER FEHLER D2	EXFLDHF	232
EXTERNER FEHLER A1	EXFLD2F	232
EXTERNER FEHLER WARNUNG	EXFLA1F	232
FELDRUEGLER A FEHLER	EXFLTV	232
FELDRUEGLER B FEHLER	EXCITA	
FELD STEU LAUFT NICHT	EXCITB	
FELDSTROM ZU NIEDRIG A	CPUSTLFE	231
FELDSTROM ZU NIEDRIG B	FLOALC	238.01
FEHLER HAUPTSCHUTZ	FLOBLC	238.01
FEHLER 1 MOTOR KÜHLUNG	MCONF	238.02
FEHLER 2 MOTOR KÜHLUNG	COOLFLT1	204
	COOLFLT2	204

TEXT OF FAULT	SIGNAL NAME	SHEET
FEHLER 3 MOTOR KÜHLUNG	COOLFLT3	204
FEHLER 4 MOTOR KÜHLUNG	COOLFLT4	204
FEHLER 5 MOTOR KÜHLUNG	COOLFLT5	204
FEHLER SERIE COM EINH	HMFDS	230
GLEISCHSTROM ERDEFELER	ETHFTDC	243.02
HILFSPANNUNG ZU NIEDRIG	ASUV	202
HOCH LAGERTEMPORATUR	MOBEARHT	243.02
HOCH WICKLUNG TEMPORATUR	MOVINHT	243.02
KEINE DATA V STROMRICHT	LNK32F	230
KEINE DAT. V BEDIENEINH	LNK35F	230
KEINE DREHZAH- RUECKWELD	NSPBACK	233
KEINE EMK-RUECKWELDUNG	ARNNEF	243.01
KEINE MELD V FELDRIGER TA	FLDANA	238.01
KEINE MELD V FELDRIGER TB	FLDBNA	238.01
KEINE MELD V HAUPTSCHUTZ	MCONTA	238.02
KEINE MELD V MOT. LUEFTER	FANNA	238.01
KEINE MELDV OIL PUMP	OPUMPA	238.01
KEINE STROMR GEWALT	NCONVEL	224
KEIN VERB M UBERL ST SYS	CSTALLMP	231
KUHLUNG HOCHTEMP.	CAOT	236
LAGER UEBERTEMPORATUR	MOBEAROT	243.02
LUFTDRUCKS FEHLER	APREFL	238.01
MOTOR ALLGEMEINE FEHLER	MOGENFLT	204
SMIERUNGSFEHLER	MOLUBFLT	243.02
STROMRICHTER A FEHLER	DRIVEA	
STROMRICHTER B FEHLER	DRIVEB	
STROMRICHTER LAUFT NICHT	CPUSTLCS	231
TESTREF ZU HOCH	TESTREFH	227

TEXT OF FAULT	SIGNAL NAME	SHEET
UBERLAST ANKER	ARNOL	243.01
UBERLAST MOTOR	MOTOL	243.01
UBERLAST MOTOR LUFTER	FANOL	238.01
UBERLAST OIL PUMP	OPUMPOL	238.01
UBERSPANNUNG MOTOR	MOTOV	243.01
UBERDREZAH MOTOR	MOTOSP	233
UBERSTROM FELD	FLDOC	
UBERTREFFER BEDIENEINH	LNK40F	230
UBERFEHLER SERIE COM	DSCLNK	243.01
UBERTREFFER STROMRICHT	LNK37F	230
UBERTEMPORATUR KÜHLUNG	CAHT	236
UBERTEMPORATUR WICKLUNG	MOVINOT	243.02

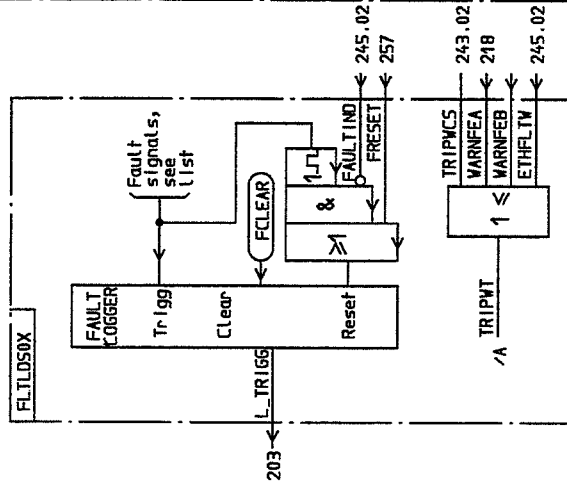




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