

# **SINUMERIK System 8**

**Function blocks  
for integrated PC 150 S  
Package 2  
Order No. 6 FC9 371-4BA**

**Edition 3.84**

Notes on application	Chapter 1
Data sheets of the function blocks	Chapter 2
Definition of terms	Chapter 3
Defined variables	Chapter 4
Forms for fault texts	Chapter 5
Annex to Chapter 1	

Contents:

Title	Page
1. Fault display with plaintext	1-1
1.1 Structure and method of operation of the fault display	1-1
1.2 Programming example	1-3

1. Fault display with plaintext

1.1 Structure and method of operation of the fault display

For the display of PC alarms the following function blocks, inter alia, are required: 31 (alarm scan), 32 (alarm display number) and 33 (alarm display text). A user program is required in addition for acquisition of the alarms (see Fig. 1).

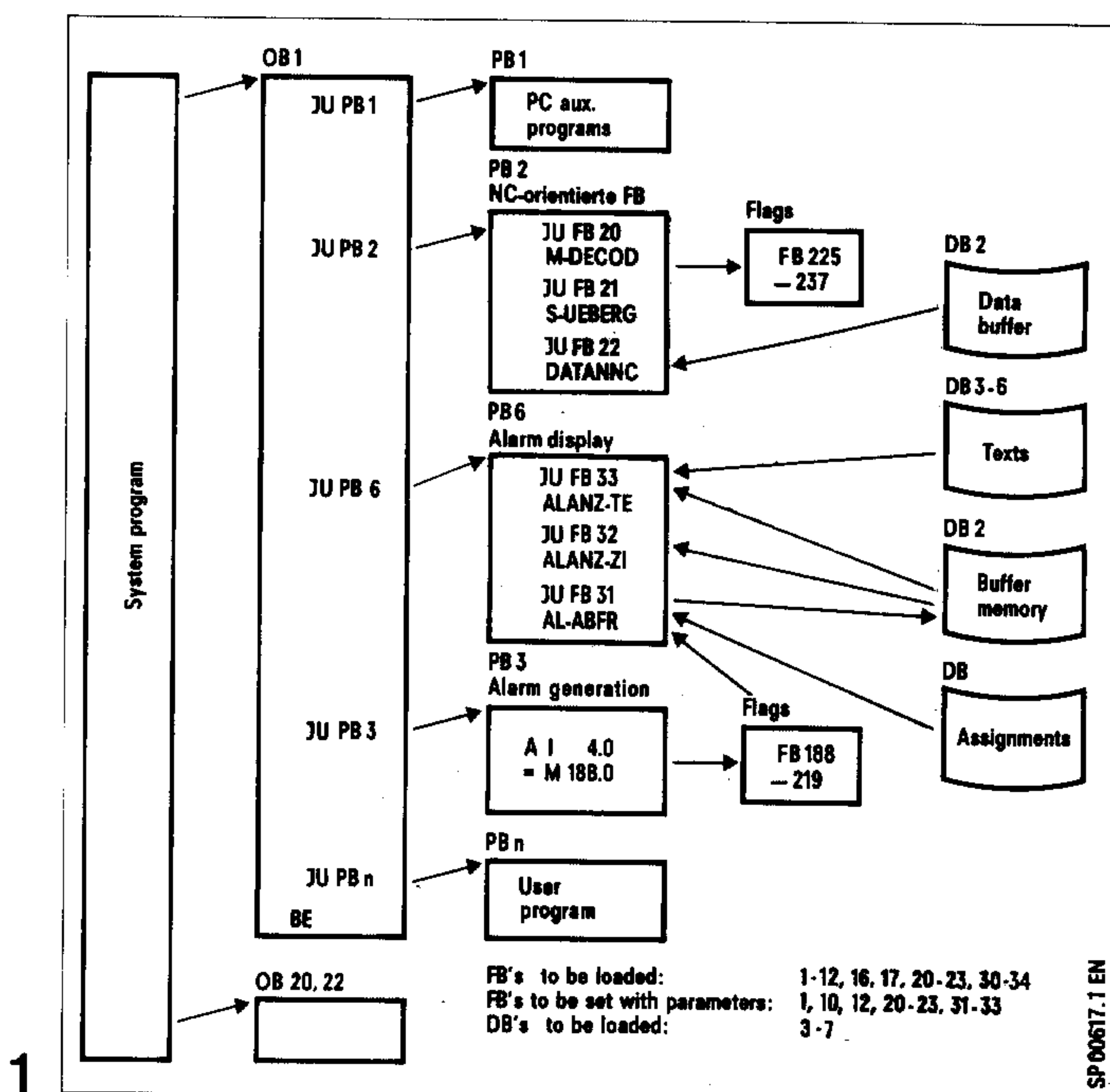


Fig. 2 shows the flow of data for the acquisition and display of PC alarms (hereafter referred to as fault and operator messages). In the user program the criteria are scanned which represent a machine fault or operator error. The results of this scan are then stored in a defined flag area. In this flag area a differentiation is made between fault messages and operator messages.

Fault messages are mainly machine faults which lead to shutdown of the unit concerned or the entire machine. These fault messages are stored and can only be reset with a separate acknowledgement signal (delete fault message).

Operator messages are meant primarily for the operator, e.g. in the case of an operator error. These faults are only active for the duration of the fault condition. If this condition no longer exists, the operator message also disappears.

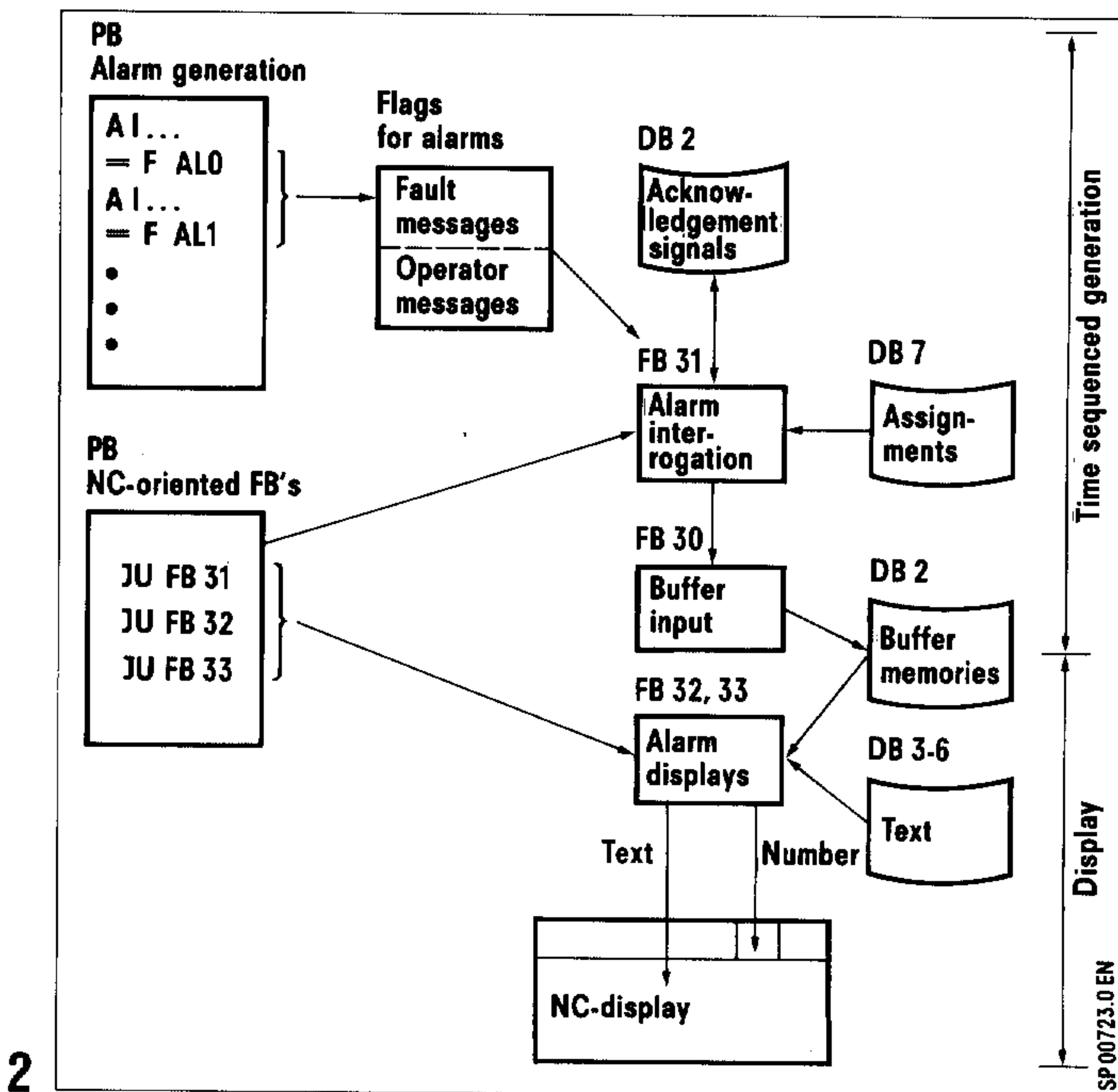


Fig. 3 shows the layout of the flag area for alarm acquisition. The first 128 flags are reserved for fault messages, and the second 128 for operation messages.

The flag area in which the results of alarm acquisition are stored is scanned cyclically by function block 31 (alarm scan) (Fig. 2). If a fault occurs, i.e. if a flag has been set, entry of the relevant identifier in the buffer memory is initiated by function block 30 (buffer memory input).

Each fault bit can be assigned an identifier in data block 7. The fault messages or operator messages are displayed using function blocks 32 and 33. The identifier for the first fault occurring automatically appears in the header of the NC display, and the texts appertaining to the fault are called up by the relevant key and displayed.

Fig. 4 shows the correlation between fault and operator messages, the identifiers assigned, their storage in the buffer memory and their display. Each fault bit is assigned a data word in data block 7, i.e. data word 0 is assigned to fault 0, data word 1 to fault 1, etc. Two identifying numbers can be entered into each assigned data word (using data format BY).

The first identifier is for fault location (alarm number); the second denotes the type of fault. Numbers 0 to 99 can be used for the fault location identifier and from 0 to 250 for the fault type identifier. If, for example, the flag is set for fault 1, this is scanned in FB 31, and the appropriate identifiers (in this example 19) are transferred to FB 30, so that the function block can transfer them to the buffer memory (in DB 2). The alarm number of the first fault to occur (fault location identifier) appears in the heading of the NC display via function block 32.

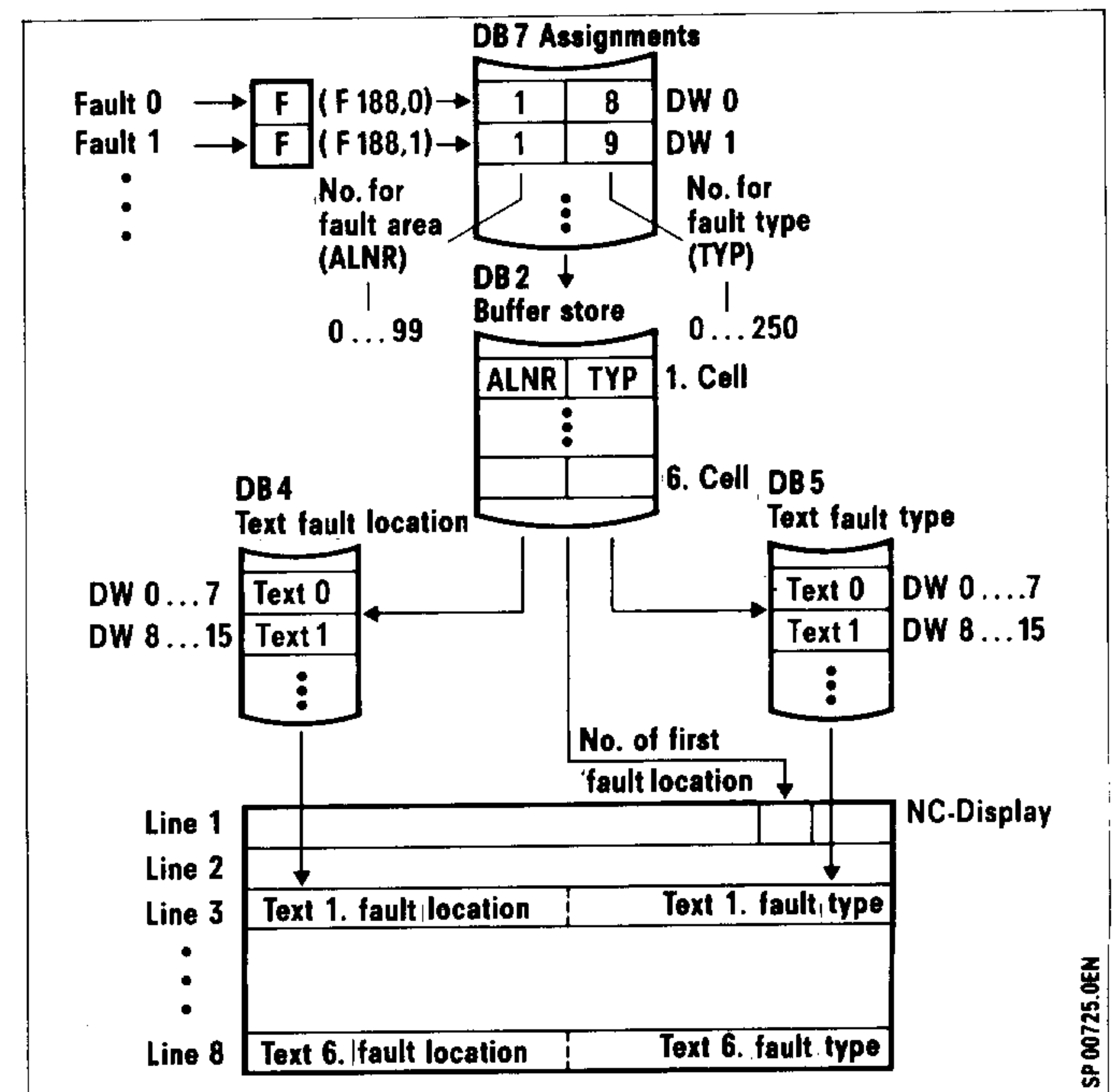
If the faults are to be displayed in plain-text, the relevant text is extracted from DB 4 (fault location) on the basis of the alarm number and appears in the first half of the appropriate display line and, on the basis of the fault type number, the text is taken from DB 5 (fault type) and appears in the second half of the appropriate display line. The first fault appears in line 3 of the NC display, the second in line 4, etc.

In both alarm acquisition and display a differentiation is made between fault messages and operator messages in that they are selected and displayed separately.

Entry of text into DB 4 and DB 5 is by means of data format C. It should be noted that 16 characters must be input for each text element (8 data words). If less than 16 characters are required for a text element, the remainder must be filled with blanks. If function blocks are used in which fault messages are generated, it is useful to use the DB5 prepared for this with the appropriate text and, if necessary, to supplement it.

Byte adr.	0	1	2	3	4	5	6	7
M 188.	F 0	F 1	F 2	F 3	F 4	F 5	F 6	F 7
189.	F 8	F 9	F 10	F 11	F 12	F 13	F 14	F 15
190.	F 16	F 17	F 18	F 19	F 20	F 21	F 22	F 23
191.	F 24	F 25	F 26	F 27	F 28	F 29	F 30	F 31
192.	F 32	F 33	F 34	F 35	F 36	F 37	F 38	F 39
193.	F 40	F 41	F 42	F 43	F 44	F 45	F 46	F 47
194.	F 48	F 49	F 50	F 51	F 52	F 53	F 54	F 55
195.	F 56	F 57	F 58	F 59	F 60	F 61	F 62	F 63
196.	F 64	F 65	F 66	F 67	F 68	F 69	F 70	F 71
197.	F 72	F 73	F 74	F 75	F 76	F 77	F 78	F 79
198.	F 80	F 81	F 82	F 83	F 84	F 85	F 86	F 87
199.	F 88	F 89	F 90	F 91	F 92	F 93	F 94	F 95
200.	F 96	F 97	F 98	F 99	F 100	F 101	F 102	F 103
201.	F 104	F 105	F 106	F 107	F 108	F 109	F 110	F 111
202.	F 112	F 113	F 114	F 115	F 116	F 117	F 118	F 119
203.	F 120	F 121	F 122	F 123	F 124	F 125	F 126	F 127
204.	F 128	F 129	F 130	F 131	F 132	F 133	F 134	F 135
205.	F 136	F 137	F 138	F 139	F 140	F 141	F 142	F 143
206.	F 144	F 145	F 146	F 147	F 148	F 149	F 150	F 151
207.	F 152	F 153	F 154	F 155	F 156	F 157	F 158	F 159
208.	F 160	F 161	F 162	F 163	F 164	F 165	F 166	F 167
209.	F 168	F 169	F 170	F 171	F 172	F 173	F 174	F 175
210.	F 176	F 177	F 178	F 179	F 180	F 181	F 182	F 183
211.	F 184	F 185	F 186	F 187	F 188	F 189	F 190	F 191
212.	F 192	F 193	F 194	F 195	F 196	F 197	F 198	F 199
213.	F 200	F 201	F 202	F 203	F 204	F 205	F 206	F 207
214.	F 208	F 209	F 210	F 211	F 212	F 213	F 214	F 215
215.	F 216	F 217	F 218	F 219	F 220	F 221	F 222	F 223
216.	F 224	F 225	F 226	F 227	F 228	F 229	F 230	F 231
217.	F 232	F 233	F 234	F 235	F 236	F 237	F 238	F 239
218.	F 240	F 241	F 242	F 243	F 244	F 245	F 246	F 247
219.	F 248	F 249	F 250	F 251	F 252	F 253	F 254	F 255

SP 00724.0 EN



1.2 Programming example

The following procedure is recommended:

1. Drafting of fault messages
2. Definition of assignments
3. Text input
4. Input of assignments
5. Calling of function blocks
6. Programming the fault criteria

Drafting of fault messages:

The forms for individual fault messages in Chapter 5 should be used for drafting the texts. Fig. 5 shows an example with three fault messages and three operator messages. The text required for each message is written into one line of the display (2 x 16 characters maximum).

Typical text for fault and operator messages (scanning via FB31)

Fault flag	Assignment in DB 7 DW	Fault area		TYP-number	Fault type	
		ALNR	Text in DB 4			Text in DB5
188.0	0		D B 7			N O A S S I G N M E N T
1	1		T U R R E N T			C L A M P I N G F A U L T
2	2		S P I N D L E			L U B . F A U L T
3	3		H Y D R A U L I C			P R E S S U R E L O S S
4	4					
5	5					
6	6					
7	7					
189.0	8					
1	9					
2	10					
3	11					
4	12					
5	13					
6	14					
7	15					

Fault flag	Assignment in DB 7 DW	Fault area		TYP-number	Fault type	
		ALNR	Text in DB4			Text in DB5
204.0	128		G E A R			N O T E N G A G E D
1	129		W O R K P I E C E			N O T C L A M P E D
2	130		H Y D R A U L I C			O I L N E E D S F I L L .
3	131					
4	132					
5	133					
6	134					
7	135					
205.0	136					
1	137					
2	138					
3	139					
4	140					
5	141					
6	142					
7	143					



Note:

Some numbers are already occupied by function blocks; e.g. in FB15, numbers 8 and 9 are reserved for calling the respective texts. Fig.7 is an overview of which numbers can be used with which texts of the function blocks. In the example in Fig.6, these texts have not been taken into account.

Structure of data block 5  
(alarm texts in EPROM area)

TYP-number	DW-No.	ASCII - character																used by FB																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16																				
0	0- 7		F		A		U		L		T		-		F		E		E		D		B				X		X	60, 61							
1	8- 15		F		A		U		L		T		-		F		E		E		D		B				O		N	66							
2	16- 23		F		A		U		L		T		-		F		E		E		D		B			O		F		F	66						
3	24- 31		F		A		U		L		T		-		F		E		E		D		B				F		R	62, 63							
4	32- 39		F		A		U		L		T		-		F		E		E		D		B				B		A	62, 63							
5	40- 47		F		A		U		L		T		-		F		E		E		D		B			R		G		T	68						
6	48- 55		F		A		U		L		T		-		F		E		E		D		B			L		F		T	68						
7	56- 63																																				
8	64- 71		F		A		U		L		T					S		T		E		P					X		X	13, 14, 15							
9	72- 79		F		A		U		L		T					S		-		N		O				S		=		X		X	13, 14, 15				
10	80- 87																																				
11	88- 95		F		A		U		L		T					S		T		A		R		T			C		O		N	13, 14					
12	96-103		T		-		W		O		R		D				F		A		U		L		T						40						
13	104-111		N		O																									42							
14	112-119		F		A		U		L		T		-		F		E		E		D		B			W		T		H	63						
15	120-127																																				
16	128-135		F		A		U		L		T					E		N		D					P		O		S			62, 63, 68					
17	136-143		P		R		E		S		S		U		R		E								F		A		U		L		T	67, 74			
18	144-151		R		U		N										T		I		M		E			F		A		U		L		T	71		
19	152-159		N		O		T											E		N		G		A		G		E		D				60, 61			
20	160-167		S		W		-		O		N						U		N		A		L		L		O		W		E		D	66, 67, 70			
21	168-175		S		W		-		O		V		E		R											U		N		A		L		L		.	60, 61
22	176-183		N		O												E		M		P		T		Y									42			
23	184-191		T		O		O		L								C		L		A		M		P		E		D					42			
24	192-199		N		O													O		I		L												75			
25	200-207		N		O													O		I		L												73			
26	208-215																																				
27	216-223																																				
28	224-231																																				
29	232-239																																				
30	240-247																																				
31	248-255																																				

### Text input:

The programmer is used for entering texts in DB4 (for fault location) and DB5 (for fault type). Eight data words are required for each text element (two characters per data word). In Section 4, from page 4.4 onwards, are forms showing which texts must be entered in which data words. The texts can be entered in DB4 and DB5 using the KS or C format identifiers. The format identifiers must be changed from line to line so that the texts can be read out later in tabular form (Fig.8)

### Entering assignments:

The assignments are entered in DB7 using the programmer. The assignment of fault message to DB in DB7 is contained in the "Fault text for individual messages" form (column assignment in DB7). The assignment must be entered in DB7 using the KY format identifier. Fig.9 shows a typical entry.

### Calling the function blocks:

Function blocks FB31, 32 and 33 must be called, for example, in PB2; FB33 must in addition be supplied with the parameters FAN (pushbutton signal for activation of fault display) and BAN (pushbutton signal for activation of operator message display).

#### Note:

In order to be able to delete fault messages, input FML (delete fault message) of FB12 must be supplied with the relevant pushbutton signal.

### Programming fault criteria:

As already described in Section 1.1, the flags must be set in the range F188.0 to 219.7 depending on the cause of fault. This can be done in one program block for all faults (e.g. as in Fig. 1) or distributed among various program blocks. In the program example in the appendix, these have been grouped in PB3.

DB4	AG150A	LAE=125
0 :	KC= DB 7	
8 :	C = TURRET	
16 :	KC= SPINDLE	
24 :	C = HYDRAULIC	
32 :	KC= GEAR	
40 :	C = WORKPIECE	
48 :	KC=	/
56 :	C =	/
64 :	KC=	/
72 :	C =	/
80 :	KC=	/
88 :	C =	/
96 :	KC=	/
104 :	C =	/
112 :	KC=	/
120 :		

DB5	AG150A	LAE=125
0 :	KC= NO ASSIGNMENT	
8 :	C = CLAMPING FAULT	
16 :	KC= LUB. FAULT	
24 :	C = PRESSURE LOSS	
32 :	KC= NOT ENGAGED	
40 :	C = NOT CLAMPED	
48 :	KC= OIL NEEDS FILL	
56 :	C =	/
64 :	KC=	/
72 :	C =	/
80 :	KC=	/
88 :	C =	/
96 :	KC=	/
104 :	C =	/
112 :	KC=	/
120 :		

8

SP00756.0 EN

DB7	AG150A	LAE=150
0 :	KY= 000,000;	
1 :	KY= 001,001;	
2 :	KY= 002,002;	
3 :	KY= 003,003;	
4 :	KY= 000,000;	
5 :	KY= 000,000;	
6 :	KY= 000,000;	
7 :	KY= 000,000;	
8 :	KY= 000,000;	
9 :	KY= 000,000;	
10 :	KY= 000,000;	
11 :	KY= 000,000;	
12 :	KY= 000,000;	
13 :	KY= 000,000;	
14 :	KY= 000,000;	
15 :	KY= 000,000;	
16 :	KY= 000,000;	
128 :	KY= 004,004;	
129 :	KY= 005,005;	
130 :	KY= 003,006;	
131 :	KY= 000,000;	
132 :	KY= 000,000;	
133 :	KY= 000,000;	
134 :	KY= 000,000;	
135 :	KY= 000,000;	
136 :	KY= 000,000;	
137 :	KY= 000,000;	
138 :	KY= 000,000;	
139 :	KY= 000,000;	
140 :	KY= 000,000;	
141 :	KY= 000,000;	
142 :	KY= 000,000;	
143 :	KY= 000,000;	
144 :	KY= 000,000;	
145 :		

9

SP00757.0 EN

## 2. Data sheets of the function blocks

FB	Mnemonic	Name	Page
10	GST-PC	Initial state PC	1)
11	EINR-DB	Initialisation of data block	1)
12	HILFSSIG	PC auxiliary signals	1)
16	BLOCK-TR	Block transfer	1)
17	DUAL/BCD	Binary/BCD code conversion	1)
22	DATANNC	Data transfer to NC	1)
30	PSP-EING	Buffer memory input	2- 2
31	AL-ABFR	Alarm scan	2- 4
32	ALAM-ZI	Alarm display number	2- 6
33	ALAN-TE	Alarm display text	2- 8
34	BCD/ISO	BCD/ISO code conversion	2-10

1) For a description of these refer to  
FB package 1, 6FC9 371-4AA



Description

The PSP-EING function block enters the identifiers of either a fault or operator message in two separate buffers in DB2. If the entry is possible, bit "UEBE" is set. The alarm number is checked to see if it is less than 100. With alarm numbers greater than 99, the PC will branch to the stop loop.

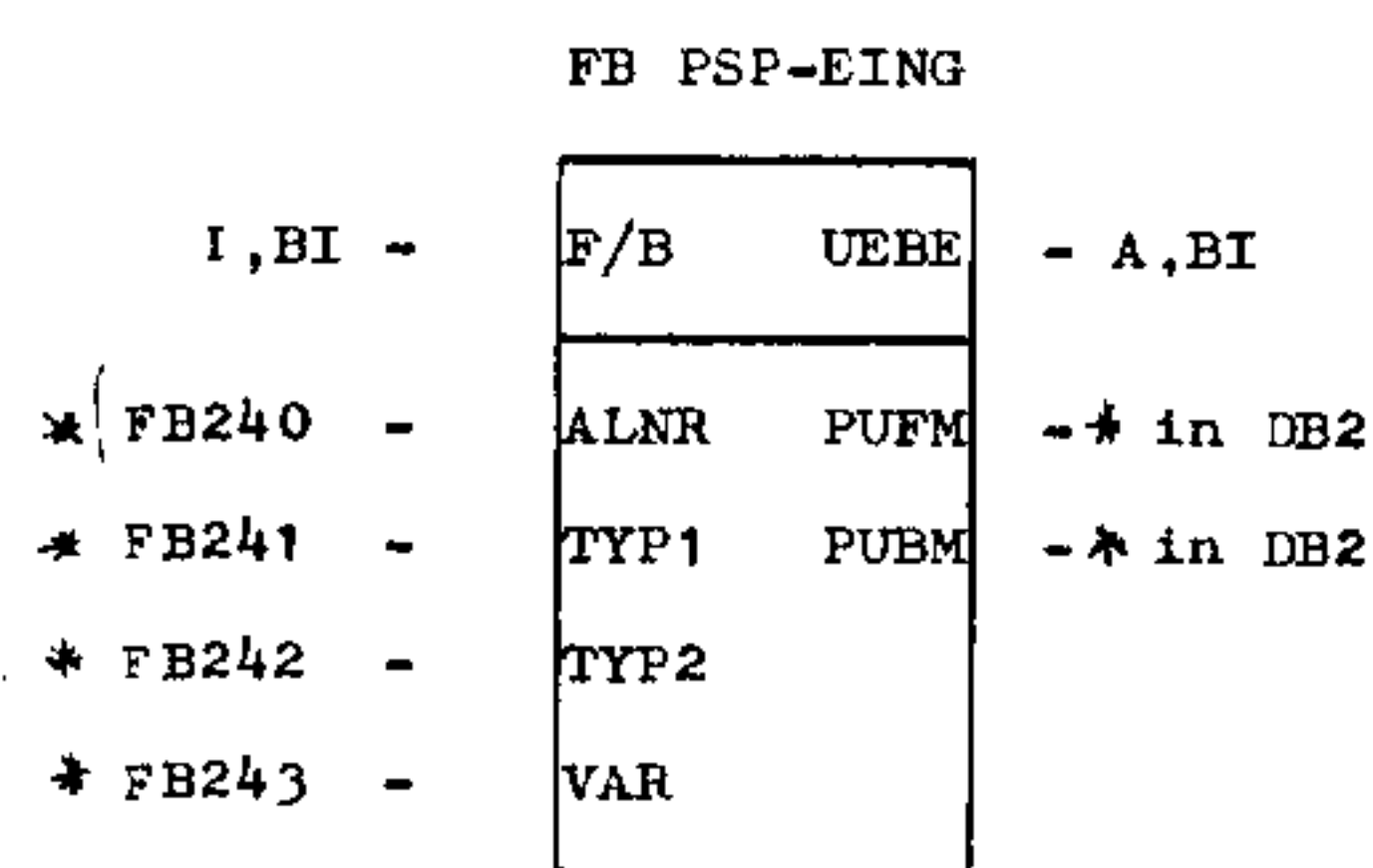
Input with "F/B" = "0" in buffer for fault messages

Input with "F/B" = "1" in buffer for operator messages

Block data

Library number: E88530-B 3030-D-0  
 Length in words: 66  
 Processing time in ms: 0.11  
 Blocks called DB2  
 Nesting depth: 0  
 Assigned variables: FW240-242 for input data  
 DW1-15 in DB2 for fault message buffer,  
 DW170-177 in DB2 for operator message buffer  
 C -  
 T -  
 Fault messages: None

Block call



\* fixed parameters

Signal names

F/B Fault status message  
 UEBE Transferred  
 ALNR Alarm number for fault location  
 TYP 1 Fault type  
 TYP 2 Required state  
 VAR Format and variable  
 PUFM Fault message buffer  
 PUBM Operator message buffer

Signal description

F/B If bit "F/B" is "0", transfer is made to the fault message buffer and if "1" to the status message buffer.

UEBE If the output has a "1" signal, the message has been transferred to the respective buffer.

ALNR Range 0-99, binary

TYP 1 Range 0-255, binary

TYP 2 Range 0-255, binary

VAR Format:

Bit

7 6

0 0 = Format 0

0 1 = Format 1

1 0 = Format 2

1 1 = Format 3

Variable (bit 0-5):

Format 1 : 0-63, binary

Format 3 : 2 x0-7, binary

PUFM Up to 6 messages may be entered in each of the buffers (fault and operator messages) of DB2 in chronological order.

Correlation between buffer memory contents and text display

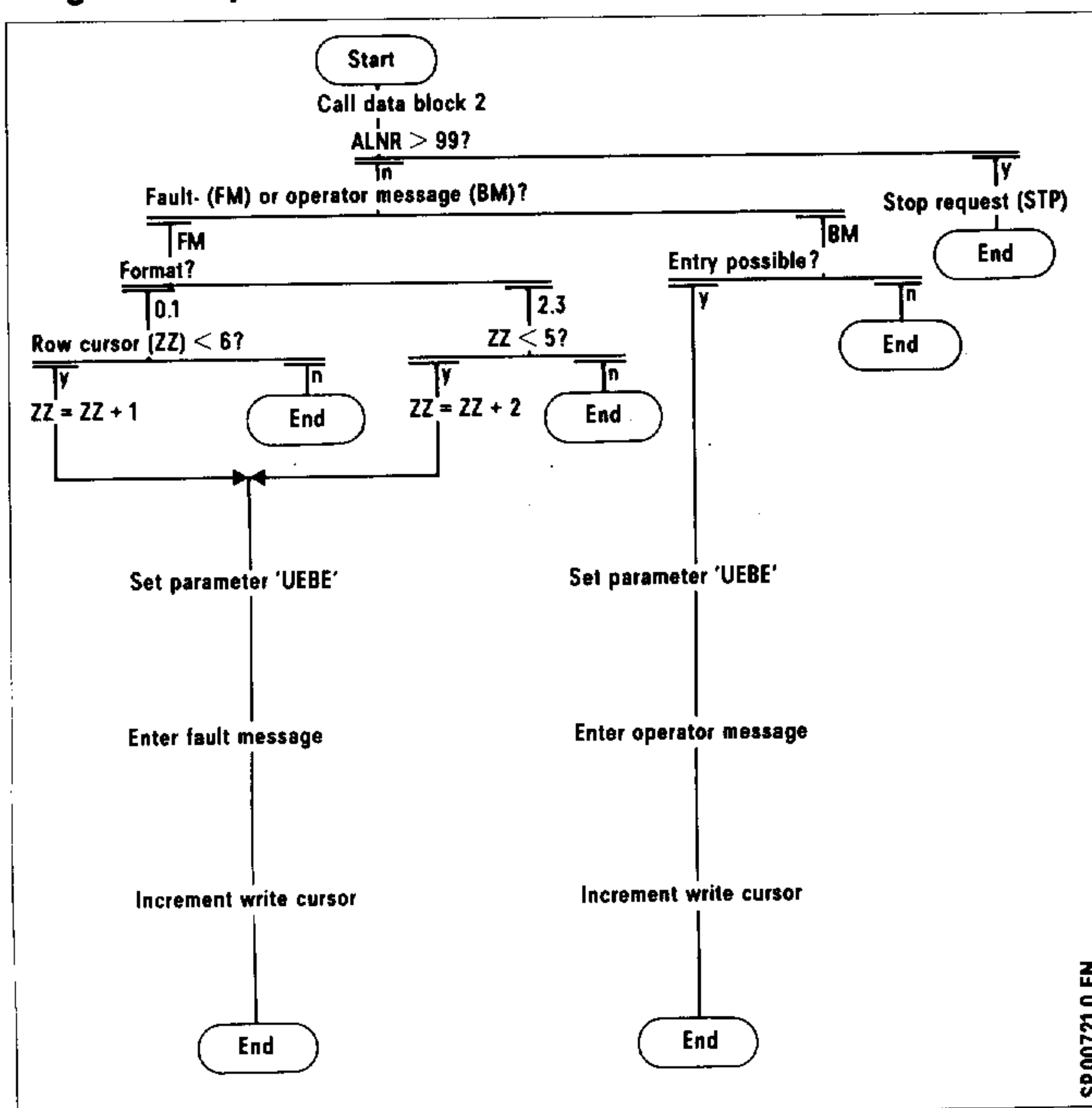
Type	Layout in buffer memory (first entry)	Build up of display										
Fault message format 0	<table border="1"> <tr><td>ALNR</td><td>TYP 1</td></tr> <tr><td>X</td><td>0 1 X</td></tr> </table>	ALNR	TYP 1	X	0 1 X	<table border="1"> <tr><td>Fault area 1)</td><td>Fault type 2)</td></tr> </table>	Fault area 1)	Fault type 2)				
ALNR	TYP 1											
X	0 1 X											
Fault area 1)	Fault type 2)											
Fault message format 1	<table border="1"> <tr><td>ALNR</td><td>TYP 1</td></tr> <tr><td>X</td><td>0 1 VAR</td></tr> </table>	ALNR	TYP 1	X	0 1 VAR	<table border="1"> <tr><td>Fault area 1)</td><td>Fault type 2) VAR 3)</td></tr> </table>	Fault area 1)	Fault type 2) VAR 3)				
ALNR	TYP 1											
X	0 1 VAR											
Fault area 1)	Fault type 2) VAR 3)											
Fault message format 2	<table border="1"> <tr><td>ALNR</td><td>TYP 1</td></tr> <tr><td>TYP 2</td><td>1 0 X</td></tr> </table>	ALNR	TYP 1	TYP 2	1 0 X	<table border="1"> <tr><td>Fault area 1)</td><td>Fault type 2)</td></tr> <tr><td>X</td><td>Command. 8)</td></tr> </table>	Fault area 1)	Fault type 2)	X	Command. 8)		
ALNR	TYP 1											
TYP 2	1 0 X											
Fault area 1)	Fault type 2)											
X	Command. 8)											
Fault message format 3	<table border="1"> <tr><td>ALNR</td><td>TYP 1</td></tr> <tr><td>TYP 2</td><td>1 1 VAR 2 VAR 1</td></tr> </table>	ALNR	TYP 1	TYP 2	1 1 VAR 2 VAR 1	<table border="1"> <tr><td>Fault area 1)</td><td>Fault Type 2) VAR 9)</td></tr> <tr><td>X</td><td>Command. 8) VAR 9)</td></tr> </table>	Fault area 1)	Fault Type 2) VAR 9)	X	Command. 8) VAR 9)		
ALNR	TYP 1											
TYP 2	1 1 VAR 2 VAR 1											
Fault area 1)	Fault Type 2) VAR 9)											
X	Command. 8) VAR 9)											
Operator message	<table border="1"> <tr><td>ALNR</td><td>TYP 1</td></tr> </table>	ALNR	TYP 1	<table border="1"> <tr><td>Fault area 1)</td><td>Fault Type 2)</td></tr> </table>	Fault area 1)	Fault Type 2)						
ALNR	TYP 1											
Fault area 1)	Fault Type 2)											
Step display	<table border="1"> <tr><td>DW 16 ALNR</td><td>Step number = VAR</td></tr> <tr><td>17 DB-NR</td><td>SB-Nr.</td></tr> <tr><td>18 Operating mode/VKE</td><td>X</td></tr> </table>	DW 16 ALNR	Step number = VAR	17 DB-NR	SB-Nr.	18 Operating mode/VKE	X	<table border="1"> <tr><td>Sequence control type<sup>1)</sup></td><td>Step 5) VAR<sup>3,7)</sup>BA<sup>5)</sup></td></tr> <tr><td>X</td><td>Step designation 6)</td></tr> </table>	Sequence control type <sup>1)</sup>	Step 5) VAR <sup>3,7)</sup> BA <sup>5)</sup>	X	Step designation 6)
DW 16 ALNR	Step number = VAR											
17 DB-NR	SB-Nr.											
18 Operating mode/VKE	X											
Sequence control type <sup>1)</sup>	Step 5) VAR <sup>3,7)</sup> BA <sup>5)</sup>											
X	Step designation 6)											

- 1) from DB 4
- 2) from DB 5
- 3) 2 decades 0-63
- 4) from DB 4
- 5) from DB 3
- 6) from the given DB
- 7) flashes with VKE = 0 and SST or SVOR
- 8) from DB 6
- 9) 0 - 7 binary
- X is not evaluated

FB 30: PSP-EING

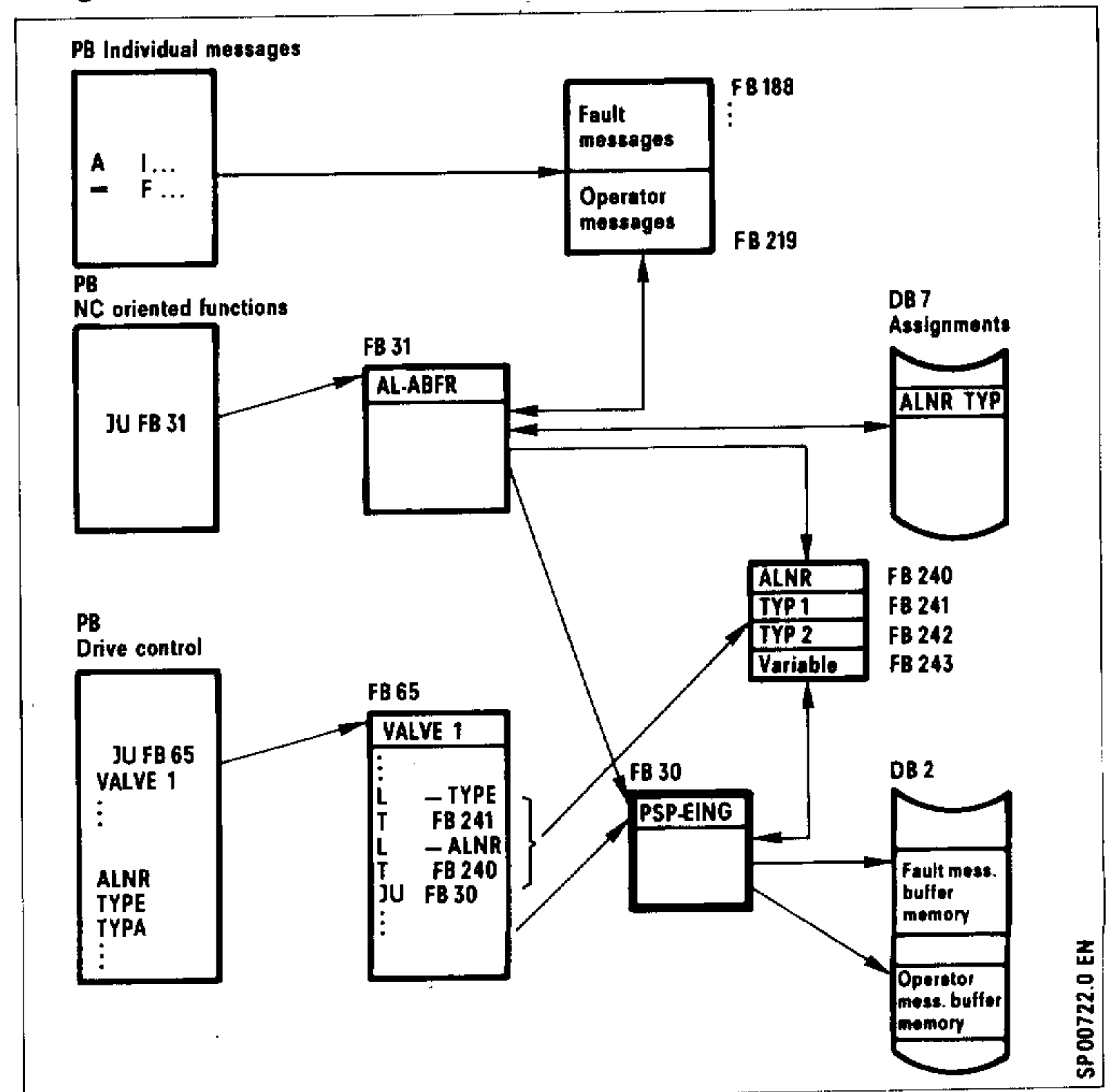
SP 00720.0 EN

Program sequence



SP00721.0 EN

Program- and data structure



SP00722.0 EN

Description

With the aid of the "Alarm scan" function block, individual messages not generated in other function blocks may be transferred into the buffer memory. The alarms are entered in a flag area of eight words each for fault and operator messages. The "Alarm scan" function block scans this flag area for any signal changes. If one of the signals changes to "1", the assigned numbers of both the fault location (ALNR) and the fault type (TYP) are transferred from DB7 via FB30 into the buffer memory.

In the case of fault messages, only the fault messages proper are evaluated. If these fault messages are to be deleted a separate command is required; "Delete fault messages" in FB12.

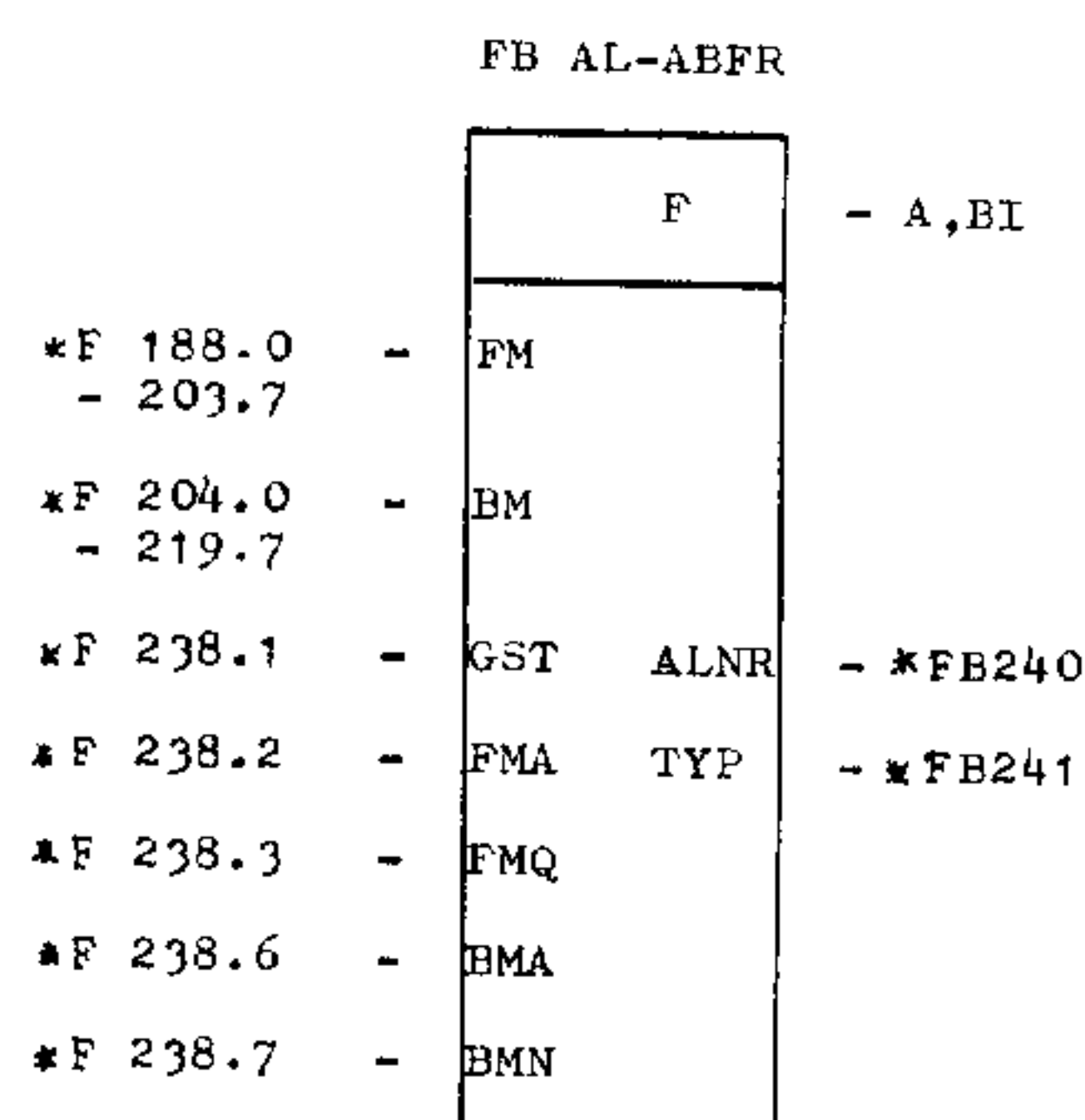
With operator messages, both the fault and back-to-normal messages are evaluated in such a way that further scanning of alarms still pending is possible when a message returns to normal.

The assignment of alarm numbers NR. (for fault location) and TYP (for fault type) must be defined in DB7 (data format: BY). Each fault uses a permanently assigned data word (fault 0 = DW0...).

Block data

Library number: E88530-B 3031-D-1  
 Length in words: 233  
 Processing time in ms: 0.19 - 0.36  
 Blocks called: FB 30, DB 7  
 Nesting depth: 1  
 Assigned variables: FW 244, 246, 250-254 for auxiliary flags  
 DW 180 - 207 in DB2 for acquisition and acknowledgement of the messages as well as for the pointer  
 T -  
 C -  
 Fault messages: -

Block call



\* fixed parameters

Signal names

FM Fault message  
Flag words 188 to 202 are used  
 BM Operator message  
Flag words 204 to 218 are used  
 GST Initial state  
 FMA Scan fault message  
 FMQ Acknowledge fault message  
 BMA Scan operator message  
 BMN Renewed output of operator message  
 F Fault active  
 ALNR Alarm number  
Number for fault location  
 TYP Fault type  
Number for fault type

ASSIGNMENTS OF DB2

DW	0	FREE FOR BDW
	52	ZW FOR ALARM SCAN
180-203		ACKNOWLEDGEMENT SIGNALS
204		ADDR. ASSIGNMENT (DB7)
205		ADDR. FM (Flags)
206		ADDR. OUTPUT FM (DW)
207		ADDR. STORED FM (DW)

Signal description

**FM, BM** Inputs for the acquisition of individual fault messages in a flag area - in the range from FW 188 - FW 218. There are eight words each for fault and operator message conditions.

(Fault messages: F188.0 - F200.7;  
F204.0 - F219.7)

**GST** GST resets all the acknowledgement and acquisition bits.

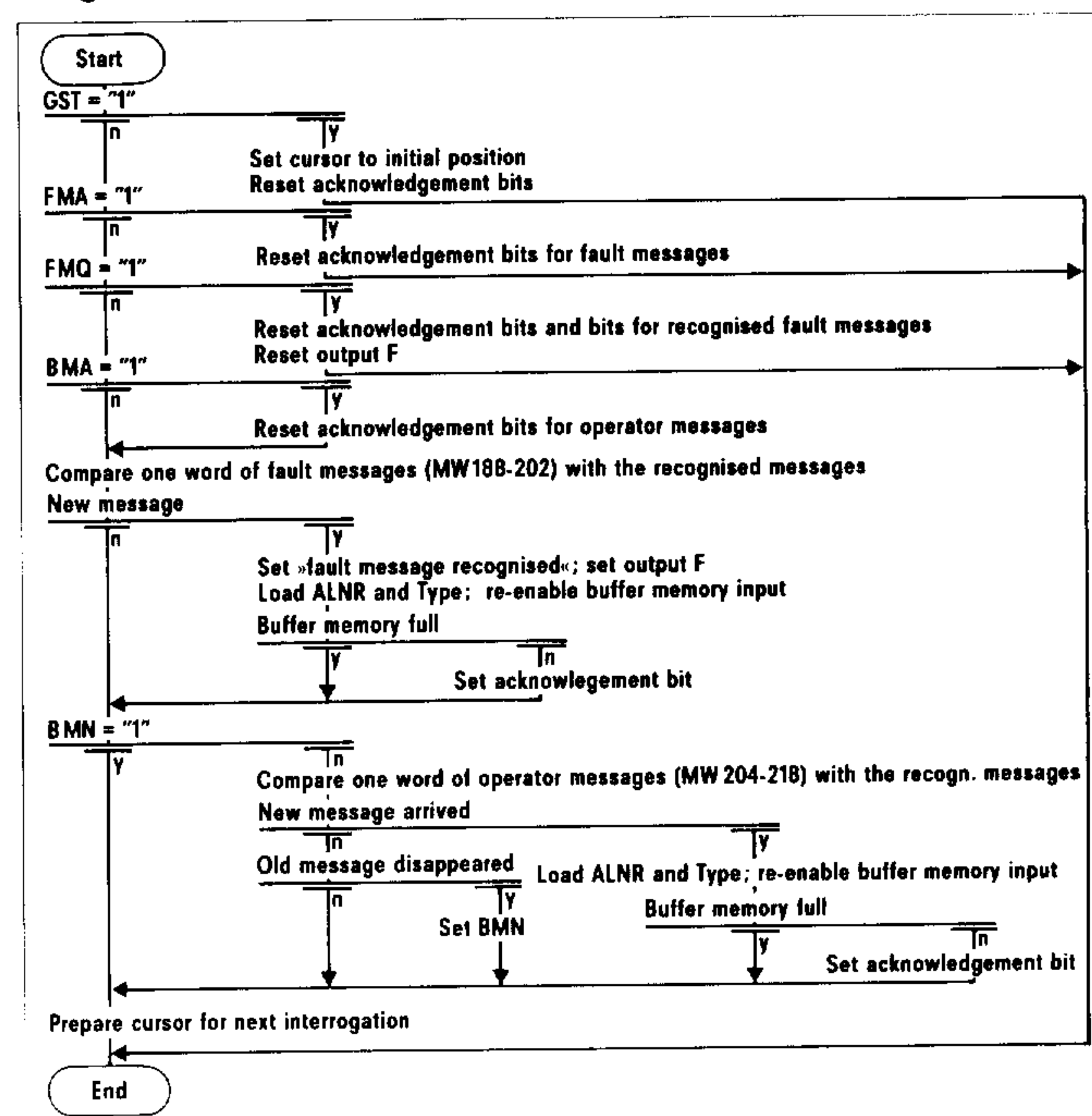
**FMA, BMA, BMN** FMA or BMA reset the acknowledgement bits for transfer of the messages into the fault and operator message buffers.

**F** A fault message sets this output to "1".

**FMQ** FMQ resets the acknowledgement bits for the fault messages acquired.

**ALNR, TYP** The numbers written into the buffer for both fault location and type must be defined in DB 7 for each individual message.

**Program sequence**



SP00726.0 EN

Description

The ALAN-ZI function block outputs the alarm number of

- a) the first entry in the fault message buffer if a fault message is pending. The number flashes at a rate of 1 Hz.
- b) the first entry in the operator message buffer if no fault message is pending. The number does not flash.

The alarm number appears in the top line of the NC display.

Block data

Library number: P71200-B 3032-B-0

Length in words: 93

Processing time 0.1  
in ms:

Blocks called: FB17, FB34, DB2

Nesting depth: 1

Assigned variables: FW 246 for status flag

DW 52 in DB2 for status word

C -

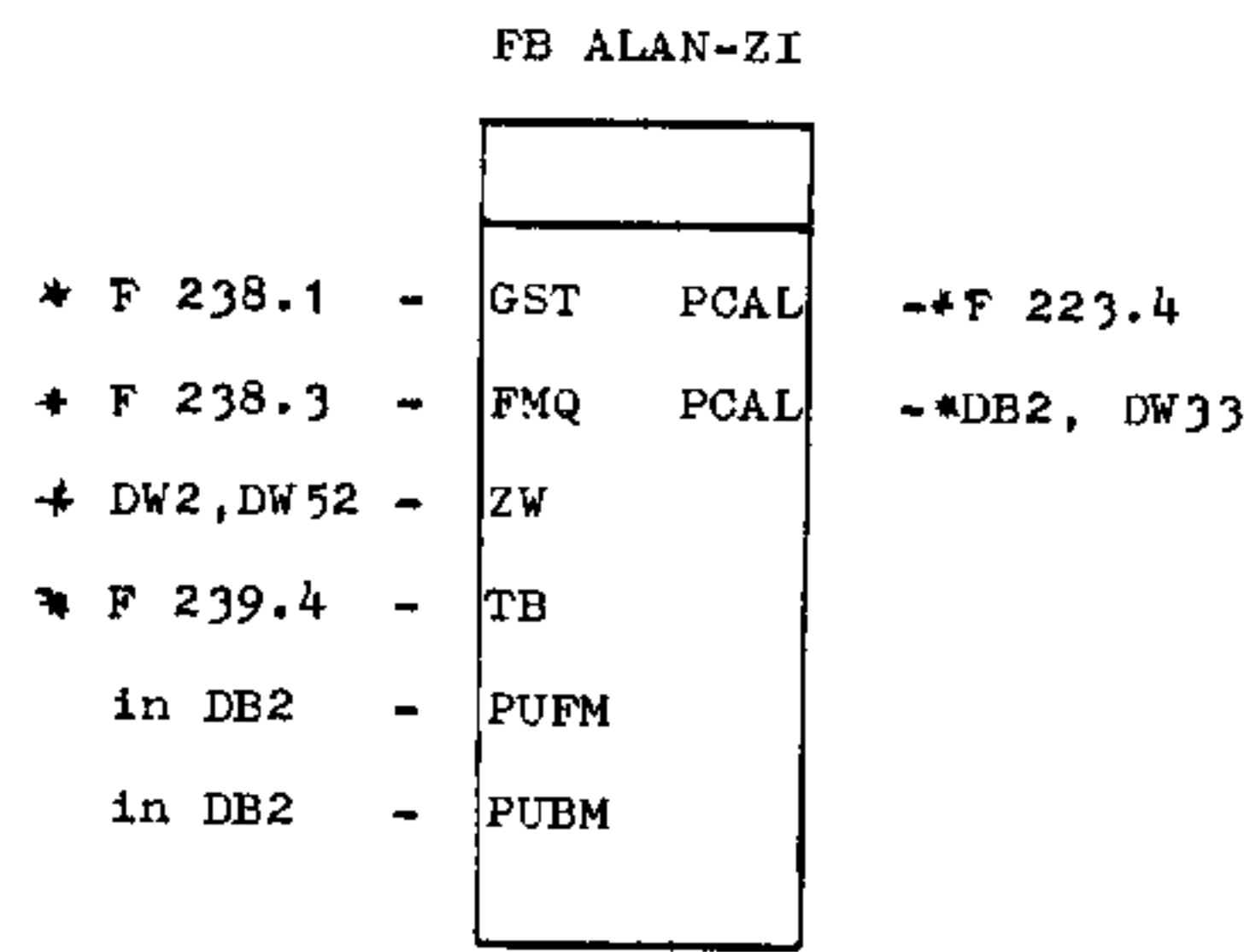
T -

Fault messages: None

Assignments in DB 2

DW	0	FREE FOR BDW
	33	PC ALARM
	52	STATUS WORD FOR ALAN-ZI

Block call



\* fixed parameters

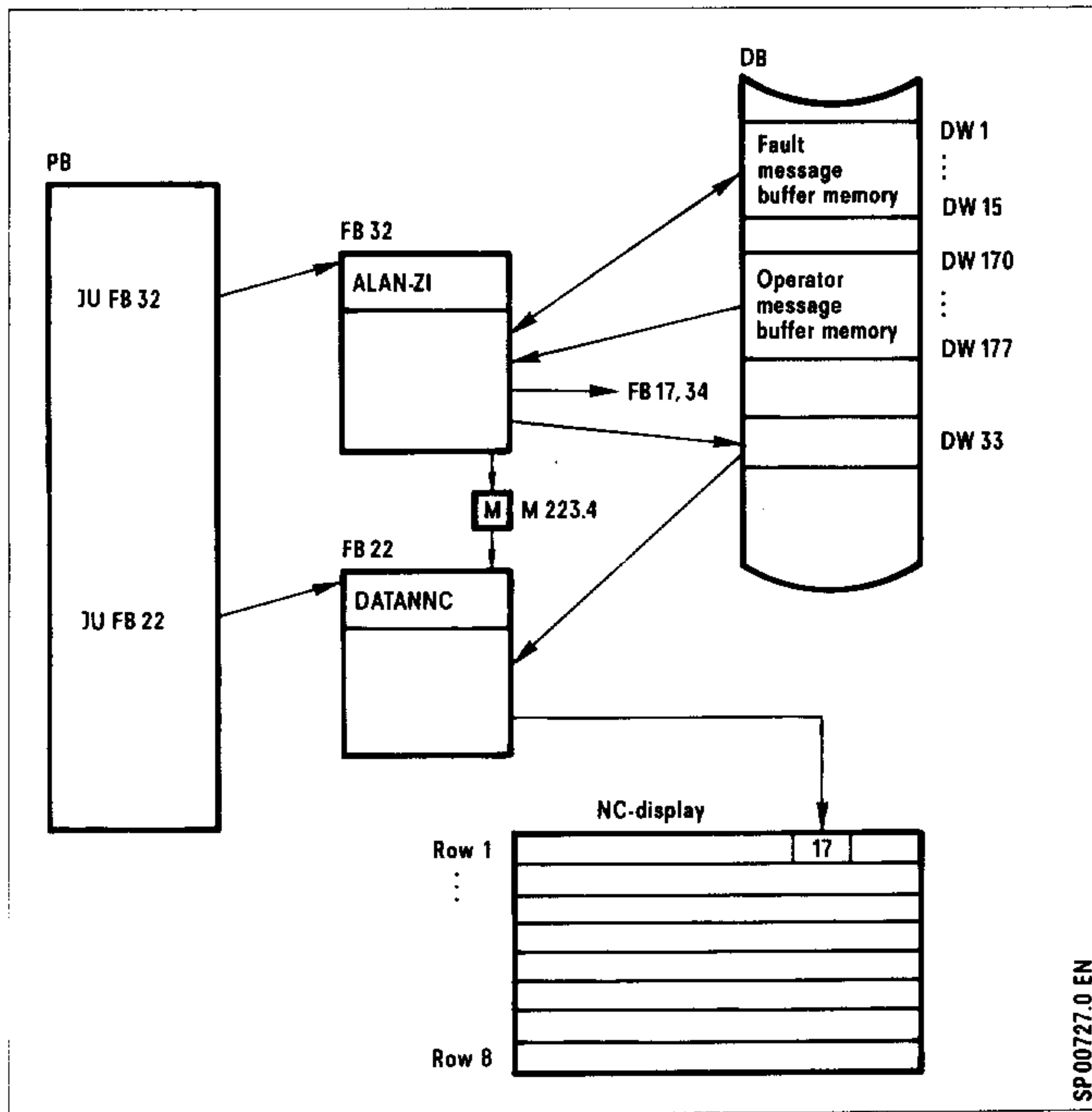
Signal names

- Grundstellung = Initial state
- Fehlermeld... = Acknowledgement fault message
- Zustandswort = Status word
- Takt-Blinklicht = Clock for flashing display
- Puffer für Fehlermeldungen = Fault message buffer
- Puffer für Betriebsmeld. = Status message buffer
- PC-Alarm = PC alarm

Signal description

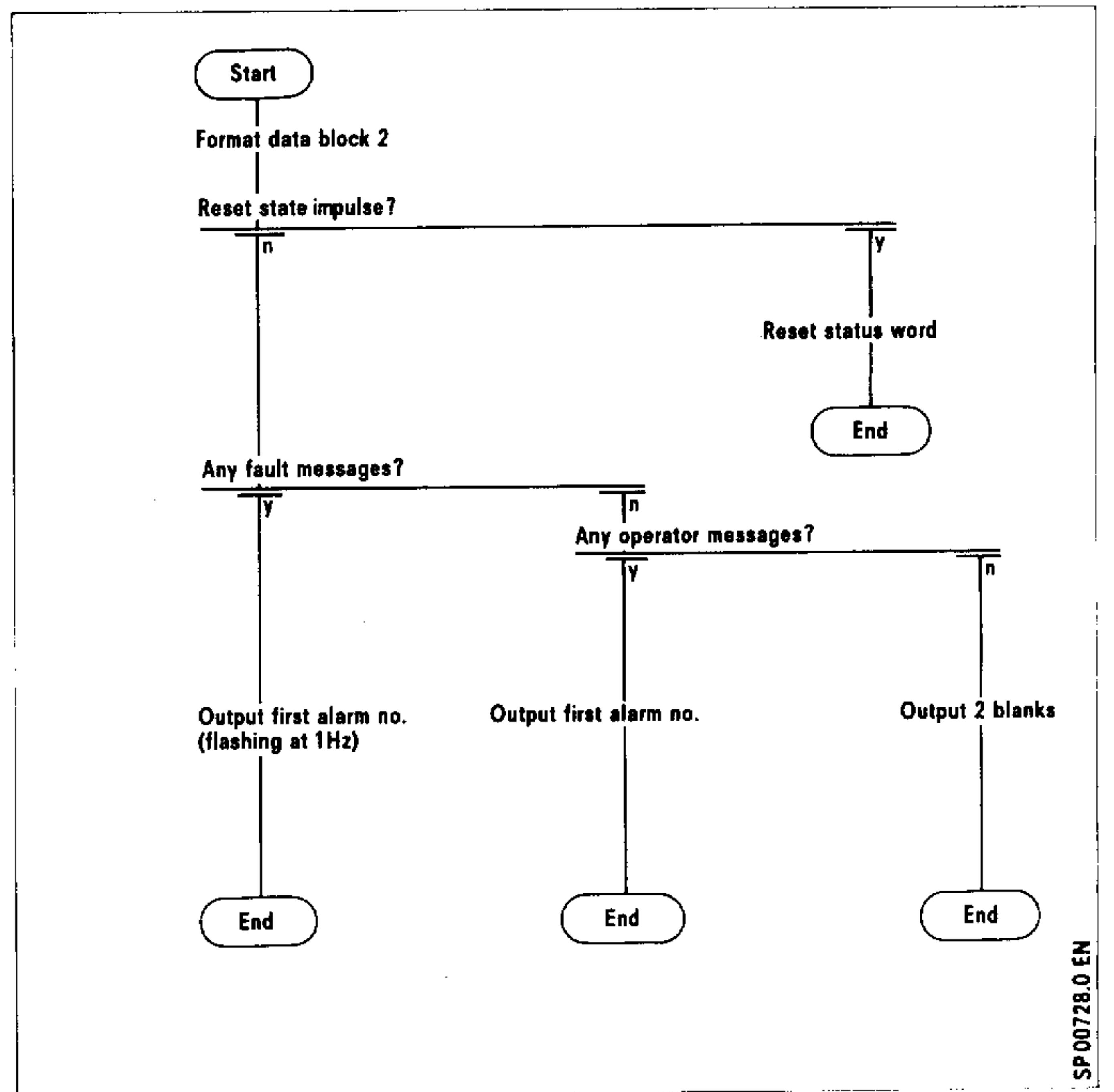
- Mit GST werden. = GST resets the fault and operator message buffers in DB2.
- Fehlermeldung.. = If FMQ is "1", the bit with which the fault number has been output is reset and a new output is enabled.
- Zustandswort = Status word (internal)
- Takt-Blinkl.. = Used for the generation of the clock frequency for the fault messages.
- Bel. siehe FB.. = For description see FB30 "PSP-EING".
- Schnittstelle.. = Interface to FB22 "DATANNC" for the transfer of the alarm number.

Program- and data structure



SP00727.0 EN

Program sequence



SP00728.0 EN

Description

The ALAN-TE function block displays

the current fault messages in response to FAN. If at least one message is output and the page key (↓) is then pressed, the display and the fault message buffer are cleared. If there are no fault messages when the page key (↓) is pressed, a further message output is enabled.

the current operator messages in response to BAN. Otherwise, similar considerations apply as for FAN.

the texts for the current step in response to SAN with the aid of the contents of the "Step display buffer" and updates them continuously; SVOR causes display of the RLO (result of logic operation) of the previous step; SST displays the RLO of the current step.

The following apply:

- a) display of the step number is steady if RLO = 1
- b) display of the step number flashes if RLO = 0

Block data

Library number: E88530-B 3033-D-1

Length in words: 668

Processing time in ms: 0.3

Blocks called: FB16, FB17, FB34, FB250, FB251, DB1, DB 3-6

Nesting depths: 1

Assigned variables: FW 240-246, 254 for format evaluation, auxiliary and status flags.

DW 36 - 51 in DB2 as buffer for text display

DW 55, 56 in DB2 for status words

C -  
T -

Fault messages: none

Assignments in DB2

DW	0	FREE FOR	BDW
	1	LINE POINTER	FOR
	2	WRITE POINTER	
	3	READ POINTER	FAULT MESSAGES
	4	ALNR	FORMAT TYPE 1
	5	TYPE 2	VARIABLE
	6-15	LOCATION 2	- 6
	16	ALNR	STEP NUMBER
	17	DB-NR	SB-NR
	18	MODE/RLO	SWITCH FOR BSD
	36-51	BUFFER FOR TEXT DISPLAY	
	55/56	ZW FOR TEXT DISPLAY	
	170	WRITE POINTER	FOR
	171	READ POINTER	OPERATOR MESSAGES
	172-177	LINES 1 - 6	

Block call

FB ALAN-TE			
I, BI	-	FAN	
I, BI	-	BAN	
I, BI	-	SAN	
*F 238.1	-	GST FMA	- *F 238.2
*F 238.3	-	FMQ BMA	- *F 238.6
*F 238.7	-	BMN DIS	- *F 120.0
*F 95.5	-	PAGE DBT	- *FB 121
*F 239.2	-	TO,5 DWT	- *FB 122
*in DB2	-	PUFM CT	- *FB 123
*in DB2	-	PUBM LT	- *FB 124
*in DB2	-	PSAN	
*DB2, DW55	-	ZW1	
*DB2, DW56	-	ZW2	

\*fixed parameters

Signal names

- FAN Display fault messages
- BAN Display operator messages
- SAN Step display
- GST Initial state
- FMQ Acknowledgement fault messages
- BMN Reoutput operator messages
- PAGE Page forwards key
- TO,5 Pulses every 0.5 s
- PUFM Fault message buffer
- PUBM Operator message buffer
- PSAN Step display buffer

ZW1, Status word  
ZW2

DIS Data for display

DBT Text data block

DWT Text data word

CT Text cursor

LT Text length

FMA Rescan fault messages

BMA Rescan operator messages

DIS Coordination identifier for NC.  
If "1", output of the fault messages to the NC display is enabled.

DBT Interface to NC; No. of data block in which the text is located.

DWT Interface to NC; No. of data block in which the text is located.

CT Interface to NC; position in display after which the text is to be output

LT Interface to NC; length of text to be output (No. of characters).

Signal description

FAN, Operator's panel keys to activate  
BAN, the required display  
SAN

GST GST resets the displays

FMQ, With FMQ "1" and FAN the display  
FAN and the fault message buffer are cleared

BMN, With BMN "1" and BAN the display  
BAN and the operator message buffer are cleared

PAGE, If FAN, PAGE = "1" and a fault  
FMA, message appears in the display,  
BMA the display and fault message buffer are cleared, enabling further fault messages to be entered in the buffer and displayed.

If FAN, PAGE = "1" and there are no fault messages in the display, FMA is output for one cycle and a rescan of the faults and, consequently, their display is enabled.

The same applies for BAN with the exception that the operator message buffer is cleared and the BMA signal is output.

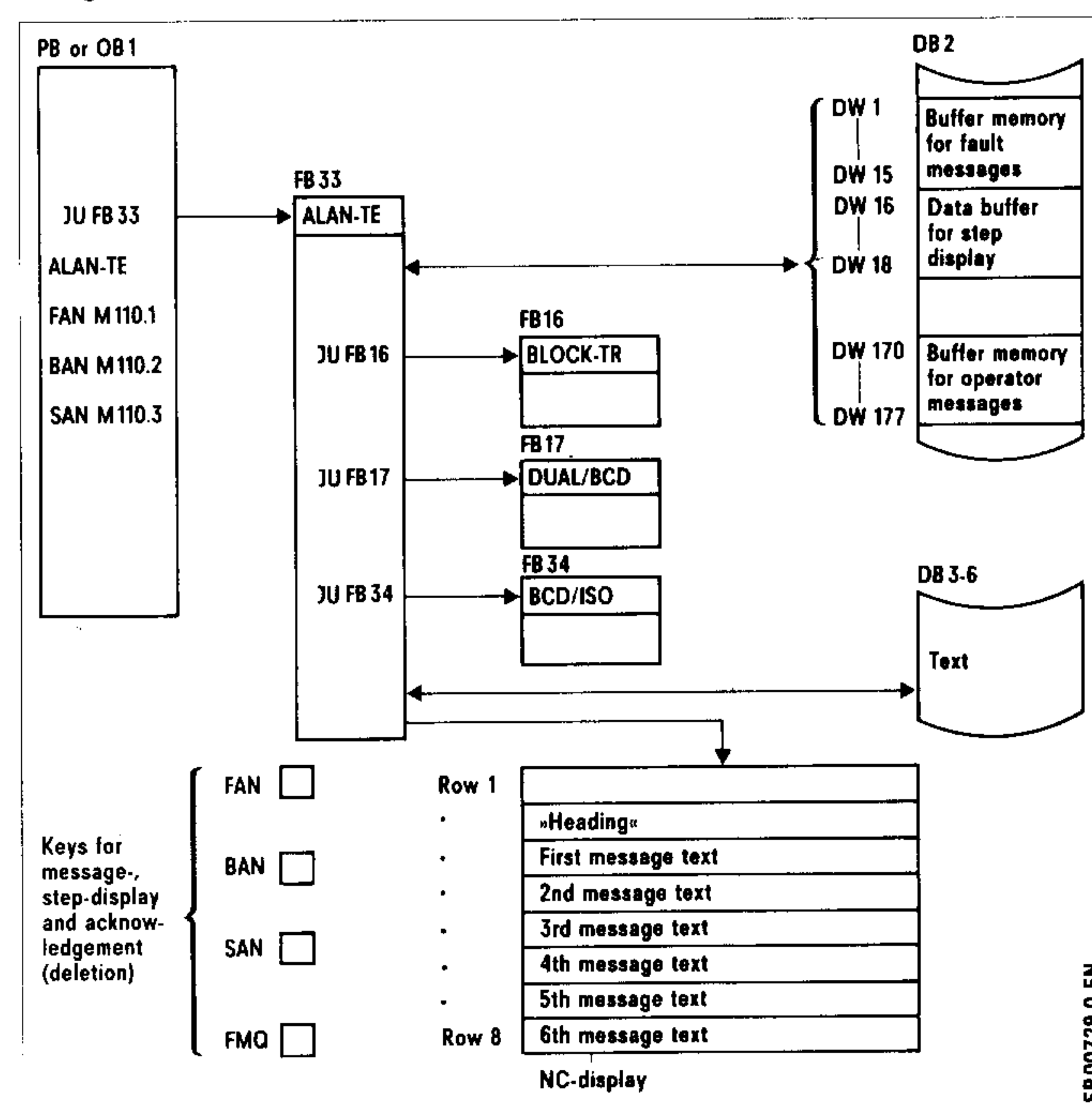
TO,5 For generating the flashing frequency of 1 Hz used in the step display.

PUFM, For description see FB30 "PSP-EING".

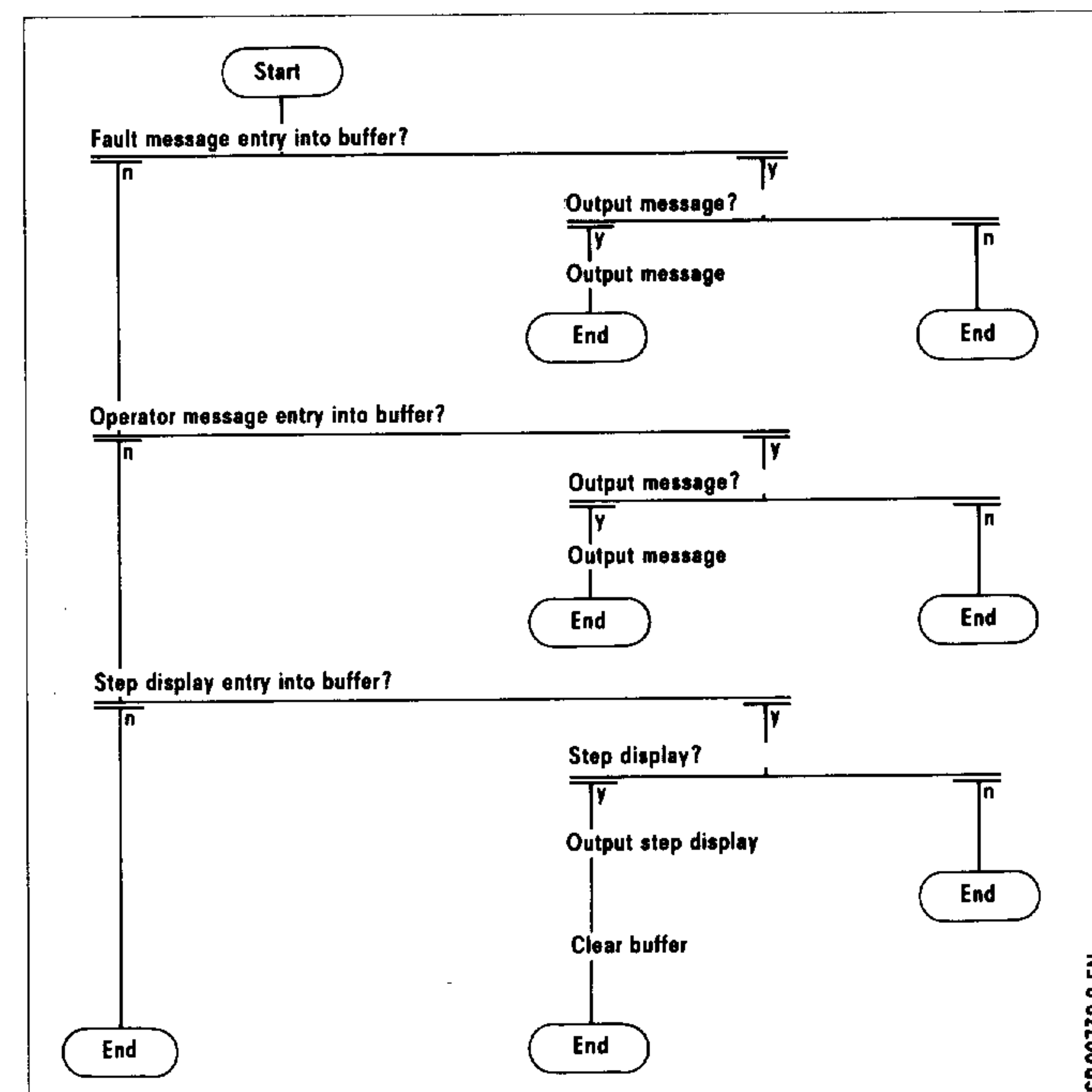
PSAN See the page opposite for a description.

ZW1, For the storing of internal statuses  
ZW2

**Program- and data structure**



**Program sequence**





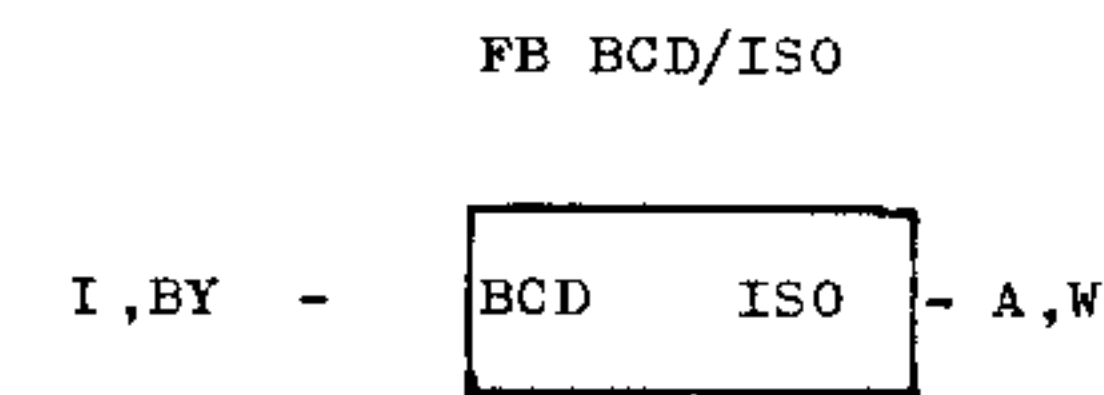
Description

The BCD/ISO function block converts a 2-decade BCD number into a 2-digit ISO 7-bit coded number. There is no checking of the BCD number. If the 10<sup>1</sup> decade is zero, a blank (=H20) is output for this digit.

Block data

Library number: E88530-B 3034-D-0  
Length in words: 36  
Processing time 0.08  
Blocks called: None  
Nesting depth: 0  
Assigned variables: FW 254 for intermediate results  
DW -  
C -  
T -  
Fault messages: None

Block call



\* fixed parameters

Signal names

BCD BCD number  
ISO Number in ISO 7-bit code

Signal description

BCD BCD number 0 - 99  
ISO Result of the code conversion in 2 decades of ISO 7-bit code



### 3. EXPLANATION OF THE NAMES AT THE INPUTS AND OUTPUTS OF THE FUNCTION MODULES

Identification	Meaning	Parameter examples
E, BI	Input, bit	E 2.4 M 130.0
E, BY	Input, byte	EB 7 MB 140
E, W	Input, word	EW 14 DW 3
A, BI	Output, bit	A 2.4 M 130.1
D, KH	Date, hexa 1)	KH = 4
D, KF	Date, fixed point 2)	KF = +17 KF = -24
D, TW	Date, time value	100.3
D, ZW	Date, counter value	254
B	Command	DB 11
T	Time	T 4
Z	Counter	Z 17

E, A = Input or output of a function module or reference to the variable with which the function module is to work.

D = Date, i.e. (fixed) value stored as parameter after the call of the function module.

B = Command to be carried out in the function module (mostly call of a data module).

T = Time at which the function module is to operate.

Z = Counter with which the function module is to operate

1) = Hexadecimal number 0000 ... FFFF

2) = Fixed point number +0 ... +32767  
-32768

#### 4. Defined variables for function blocks

##### 1. Data blocks

DB0 Address lists  
DB1 Data block for data transfer from PC to NC  
DB2 Variable for function blocks  
DB3 Texts for alarm numbers  
DB5 Texts for alarm type 1 (fault, acknowledgement)  
DB6 Texts for alarm type 2 (desired position)  
DB7 Assignments for fault and operator messages  
DB9 Data block for data transfer from NC to PC  
from DB 10\* onwards for user variables, e.g. states and  
assignments of tool magazine  
DB14 DNC channel in package 5  
DB15 DNC screen form  
DB16) input and output buffer for DNC  
DB17) channel  
DB18 Variable for package 7  
DB19 Fault texts for FB 231

##### 2. Flags

Flags 0 to 124 reserved for PC/NC interface  
Flags 188 to 255 reserved for function blocks

##### 3. Counter

Counter 0 reserved for code conversion

##### 4. Timers

Timer 255 reserved for PC auxiliary signals

##### 5. Function blocks

FB 0... 99 and FB 200 to 255 are reserved for standard FBs

\*) DW 0 and 1 to be kept for display program and sequencer (drum sequencer)!

Assignment data module 2 (variable for function module)

DW-No.	Assigned with
0	Can be assigned by BDW
1- 15	Buffer store for alarm messages (FB 33)
16- 18	Buffer store for step display (FB 33)
19	IS for FB 31
20- 35	Buffer store for DATANNC (FB 22)
36- 51	Buffer store for text display (FB 33)
52	IS for ALAN-ZI (FB 32)
53/ 54	IS for DATANNC (FB 22)
55/ 56	IS for ALAN-TE (FB 33)
57	IS for M-DECOD (FB 20)
58	IS for HILFSSIG (FB 12)
59	IS for TASTANNC (FB 23), M-DECOD, S-UEBERG
60/ 61	IS for F-KONV (FB 85)
62/ 63	IS for S-KONV (FB 84)
64/ 65	IS for S-DECOD (FB 24)
66	IS for PROG-ANW (FB 25)
67	IS for HILFSSIG (FB 12), M-DECOD
68/ 69	IS for WZ-AUSWZ (FB 49)
70-119	IS for STATUS (FB 1)
120/121	IS for MESSEN (FB 27/28)
122-127	IS for INKR.WK (FB 29)
128-159	Not assigned
160-167	Variable for block transfer (FB 16)
168/169	Not assigned
170-177	Buffer store for individual messages (FB 33)
178/179	Not assigned
180-207	
208-237	Not assigned
238-239	Buffer store for DATANNC (FB 22)
240-251	Buffer store for VAR RETT/LAD (FB 18/19)
252-255	Buffer store for DATANNC (FB 22)

Assignment data module 2 (variable for function module)

DW-No.	Assigned with
0-111	Blank
112-159	Keyboard lettering for FB 1 (status)
160-203	Auxiliary text for FB 33
204-252	Auxiliary text for FB 1 (status)

Layout of data block 4 (alarm text in EPROM)

Alarm-number	DW-No.	ASCII-character															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
0	0- 7																
1	8- 15																
2	16- 23																
3	24- 31																
4	32- 39																
5	40- 47																
6	48- 55																
7	56- 63																
8	64- 71																
9	72- 79																
10	80- 87																
11	88- 95																
12	96-103																
13	104-111																
14	112-119																
15	120-127																
16	128-135																
17	136-143																
18	144-151																
19	152-159																
20	160-167																
21	168-175																
22	176-183																
23	184-191																
24	192-199																
25	200-207																
26	208-215																
27	216-223																
28	224-231																
29	232-239																
30	240-247																
31	248-255																

Layout of data block 4 (alarm text in EPROM)

Alarm-number	DW- No .	ASCII- character															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
32	256-263																
33	264-271																
34	272-279																
35	280-287																
36	288-295																
37	296-303																
38	304-311																
39	312-319																
40	320-327																
41	328-335																
42	336-343																
43	344-351																
44	352-359																
45	360-367																
46	368-375																
47	376-383																
48	384-391																
49	392-399																
50	400-407																
51	408-415																
52	416-423																
53	424-431																
54	432-439																
55	440-447																
56	448-455																
57	456-463																
58	464-471																
59	472-479																
60	480-487																
61	488-495																
62	496-503																
63	504-511																



Layout of data block 4 (alarm text in EPROM)

Alarm-number	DW- No.	ASCII-character															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
64	512-519																
65	520-527																
66	528-535																
67	536-543																
68	544-551																
69	552-559																
70	560-567																
71	568-575																
72	576-583																
73	584-591																
74	592-599																
75	600-607																
76	608-615																
77	616-623																
78	624-631																
79	632-639																
80	640-647																
81	648-655																
82	656-663																
83	664-671																
84	672-679																
85	680-687																
86	688-695																
87	696-703																
88	704-711																
89	712-719																
90	720-727																
91	728-735																
92	736-743																
93	744-751																
94	752-759																
95	760-768																

Layout of data block 5 (alarm text in EPROM)

TYP-number	DW-No.	ASCII - character																													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16														
0	0- 7		F		A		U		L		T		-		F		E		E		D		B				X		X		
1	8- 15		F		A		U		L		T		-		F		E		E		D		B				O		N		
2	16- 23		F		A		U		L		T		-		F		E		E		D		B			O		F		F	
3	24- 31		F		A		U		L		T		-		F		E		E		D		B				F		R		
4	32- 39		F		A		U		L		T		-		F		E		E		D		B				B		A		
5	40- 47		F		A		U		L		T		-		F		E		E		D		B			R		G		T	
6	48- 55		F		A		U		L		T		-		F		E		E		D		B			L		F		T	
7	56- 63																														
8	64- 71		F		A		U		L		T				S		T		E		P						X		X		
9	72- 79		F		A		U		L		T				S		-		N		O				S		=		X		X
10	80- 87																														
11	88- 95		F		A		U		L		T				S		T		A		R		T			C		O		N	
12	96-103		T		-		W		O		R		D				F		A		U		L		T						
13	104-111		N		O				T		O		O		L																
14	112-119		F		A		U		L		T		-		F		E		E		D		B			W		T		H	
15	120-127																														
16	128-135		F		A		U		L		T				E		N		D				P		O		S				
17	136-143		P		R		E		S		S		U		R		E				F		A		U		L		T		
18	144-151		R		U		N				T		I		M		E				F		A		U		L		T		
19	152-159		N		O		T				E		N		G		A		G		E		D								
20	160-167		S		W		-		O		N				U		N		A		L		L		O		W		E		D
21	168-175		S		W		-		O		V		E		R						U		N		A		L		L		.
22	176-183		N		O				E		M		P		T		Y				P		L		A		C		E		
23	184-191		T		O		O		L				C		L		A		M		P		E		D						
24	192-199		N		O				O		I		L																		
25	200-207		N		O				O		I		L		/		A		I		R										
26	208-215																														
27	216-223																														
28	224-231																														
29	232-239																														
30	240-247																														
31	248-255																														

Layout of data block 5 (alarm text in EPROM)

Typ- number	DW- No.	ASCII- character															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
32	256-263																
33	264-271																
34	272-279																
35	280-287																
36	288-295																
37	296-303																
38	304-311																
39	312-319																
40	320-327																
41	328-335																
42	336-343																
43	344-351																
44	352-359																
45	360-367																
46	368-375																
47	376-383																
48	384-391																
49	392-399																
50	400-407																
51	408-415																
52	416-423																
53	424-431																
54	432-439																
55	440-447																
56	448-455																
57	456-463																
58	464-471																
59	472-479																
60	480-487																
61	488-495																
62	496-503																
63	504-511																

Layout of data block 5 (alarm text in EPROM)

Typ- number	DW- No.	ASCII- character															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
64	512-519																
65	520-527																
66	528-535																
67	536-543																
68	544-551																
69	552-559																
70	560-567																
71	568-575																
72	576-583																
73	584-591																
74	592-599																
75	600-607																
76	608-615																
77	616-623																
78	624-631																
79	632-639																
80	640-647																
81	648-655																
82	656-663'																
83	664-671																
84	672-679																
85	680-687																
86	688-695																
87	696-703																
88	704-711																
89	712-719																
90	720-727																
91	728-735																
92	736-743																
93	744-751																
94	752-759																
95	760-768																

Layout of data block 6 (alarm text in EPROM)

Typ-number	DW- No.	ASCII-character																															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16																
0	0- 7		C		O		M		M		.		S		T		A		T		E						X		X				
1	8- 15		C		O		M		M		.		S		T		A		T		E						O		N				
2	16- 23		C		O		M		M		.		S		T		A		T		E						O		F		F		
3	24- 31		C		O		M		M		.		S		T		A		T		E						F		R				
4	32- 39		C		O		M		M		.		S		T		A		T		E						B		A				
5	40- 47		C		O		M		M		.		S		T		A		T		E						R		G		T		
6	48- 55		C		O		M		M		.		S		T		A		T		E						L		F		T		
7	56- 63		C		O		M		M		:				V		1				O		N										
8	64- 71		C		O		M		M		:				V		2				O		N										
9	72- 79		C		O		M		M		:				V		3				O		N										
10	80- 87		C		O		M		M		:				V		4				O		N										
11	88- 95																																
12	96-103																																
13	104-111																																
14	112-119		C		O		M		M		.		S		T		A		T		E						W		I		T		H
15	120-127																																
16	128-135																																
17	136-143																																
18	144-151																																
19	152-159																																
20	160-167																																
21	168-175																																
22	176-183																																
23	184-191																																
24	192-199																																
25	200-207																																
26	208-215																																
27	216-223																																
28	224-231																																
29	232-239																																
30	240-247																																
31	248-255																																

Layout of data block 6 (alarm text in EPROM)

Typ- number	DW- No.	ASCII- character															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
32	256-263																
33	264-271																
34	272-279																
35	280-287																
36	288-295																
37	296-303																
38	304-311																
39	312-319																
40	320-327																
41	328-335																
42	336-343																
43	344-351																
44	352-359																
45	360-367																
46	368-375																
47	376-383																
48	384-391																
49	392-399																
50	400-407																
51	408-415																
52	416-423																
53	424-431																
54	432-439																
55	440-447																
56	448-455																
57	456-463																
58	464-471																
59	472-479																
60	480-487																
61	488-495																
62	496-503																
63	504-511																

Layout of data block 6 (alarm text in EPROM)

Typ-number	DW- No.	ASCII-character															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
64	512-519																
65	520-527																
66	528-535																
67	536-543																
68	544-551																
69	552-559																
70	560-567																
71	568-575																
72	576-583																
73	584-591																
74	592-599																
75	600-607																
76	608-615																
77	616-623																
78	624-631																
79	632-639																
80	640-647																
81	648-655																
82	656-663																
83	664-671																
84	672-679																
85	680-687																
86	688-695																
87	696-703																
88	704-711																
89	712-719																
90	720-727																
91	728-735																
92	736-743																
93	744-751																
94	752-759																
95	760-768																

Assignment of flags

MB0   20	Input signal PC NC	
21   44	Output signals NC PC	
45   49	DNC signals PC NC	
50   65	Output information for operator's panel (displays) <small>ntafel</small>	For assignment see System 8 Interface Description, Section 2
66   81	Input information from operator's panel (keyboard signals)	
82   100	Standard operator's panel signals PC -- NC	
101   119	Standard operator's panel signals Operator's panel -- PC	
120   124	Display coordination	
125   187	unassigned	
188   219	Input signals for individual messages	
220	unassigned	
221	Turret/magazine actual position	For assignment, see FB 40 WZ-AUSW
222	Turret/magazine desired position	
223   224	Transfer flags for FB DATANNC	For assignment, see FB 22 DATANNC
225   237	Output signals M-decod.	For assignment, see FB 20 M-DECOD
238   239	PC auxiliary signals	For assignment, see FB 12 HILFSSIG
240   243	Transfer flags for FB PSP-EING	For assignment, see FB 30 PSP-EING
244   247	Status flags	For assignment see the respective FB
248   251	Input flags	
252   255	Auxiliary flags for intermediate results	



Error flag	assignment in DB7 DW	Fault area		TYP-number	Fault type	
		ALNR	Text in DB4		Text in DB5	
188.0	0					
1	1					
2	2					
3	3					
4	4					
5	5					
6	6					
7	7					
189.0	8					
1	9					
2	10					
3	11					
4	12					
5	13					
6	14					
7	15					

Error flag	assignment in DB7 DW	Fault area		Fault type	
		ALNR	Text in DB4	TYP-number	Text in DB5
190.0	16				
1	17				
2	18				
3	19				
4	20				
5	21				
6	22				
7	23				
191.0	24				
1	25				
2	26				
3	27				
4	28				
5	29				
6	30				
7	31				

Error flag	assignment in DB7 DW	ALNR	Fault area	TYP-number	Fault type
			Text in DB4		Text in DB5
192.0	32				
1	33				
2	34				
3	35				
4	36				
5	37				
6	38				
7	39				
193.0	40				
1	41				
2	42				
3	43				
4	44				
5	45				
6	46				
7	47				

Error flag	assignment in DB7 DW	Fault area		Fault type	
		ALNR	Text in DB4	TYP- number	Text in DB5
194.0	48				
1	49				
2	50				
3	51				
4	52				
5	53				
6	54				
7	55				
195.0	56				
1	57				
2	58				
3	59				
4	60				
5	61				
6	62				
7	63				

Error flag	assignment in DB7 DW	Fault area		Fault type	
		ALNR	Text in DB4	TYP- number	Text in DB5
196.0	64				
1	65				
2	66				
3	67				
4	68				
5	69				
6	70				
7	71				
197.0	72				
1	73				
2	74				
3	75				
4	76				
5	77				
6	78				
7	79				

Error flag	assignment in DB7 DW	ALNR	Fault area	TYP-number	Fault type
			Text in DB4		Text in DB5
198.0	80				
1	81				
2	82				
3	83				
4	84				
5	85				
6	86				
7	87				
199.0	88				
1	89				
2	90				
3	91				
4	92				
5	93				
6	94				
7	95				

Error flag	assignment in DB7 DW	Fault area		Fault type	
		ALNR	Text in DB4	TYP- number	Text in DB5
200.0	96				
1	97				
2	98				
3	99				
4	100				
5	101				
6	102				
7	103				
201.0	104				
1	105				
2	106				
3	107				
4	108				
5	109				
6	110				
7	111				

Error flag	assignment in DB7 DW	Fault area		TYP-number	Fault type	
		ALNR	Text in DB4		Text in DB5	
202.0	112					
1	113					
2	114					
3	115					
4	116					
5	117					
6	118					
7	119					
203.0	120					
1	121					
2	122					
3	123					
4	124					
5	125					
6	126					
7	127					



Error flag	assignment in DB7 DW	ALNR	Fault area	TYP-number	Fault type
			Text in DB4		Text in DB5
204.0	128				
1	129				
2	130				
3	131				
4	132				
5	133				
6	134				
7	135				
205.0	136				
1	137				
2	138				
3	139				
4	140				
5	141				
6	142				
7	143				

Error flag	assignment in DB7 DW	Fault area		Fault type	
		ALNR	Text in DB4	TYP-number	Text in DB5
206.0	144				
1	145				
2	146				
3	147				
4	148				
5	149				
6	150				
7	151				
207.0	152				
1	153				
2	154				
3	155				
4	156				
5	157				
6	158				
7	159				

Error flag	assignment in DB7 DW	Fault area		Fault type	
		ALNR	Text in DB4	TYP-number	Text in DB5
208.0	160				
1	161				
2	162				
3	163				
4	164				
5	165				
6	166				
7	167				
209.0	168				
1	169				
2	170				
3	171				
4	172				
5	173				
6	174				
7	175				

Error flag	assignment in DB7 DW	ALNR	Fault area	TYP- number	Fault type
			Text in DB4		Text in DB5
210.0	176				
1	177				
2	178				
3	179				
4	180				
5	181				
6	182				
7	183				
211.0	184				
1	185				
2	186				
3	187				
4	188				
5	189				
6	190				
7	191				

Error flag	assignment in DB7 DW	ALNR	Fault area	TYP-number	Fault type
			Text in DB4		Text in DB5
212.0	192				
1	193				
2	194				
3	195				
4	196				
5	197				
6	198				
7	199				
213.0	200				
1	201				
2	202				
3	203				
4	204				
5	205				
6	206				
7	207				

Error flag	assignment in DB7 DW	Fault area		Fault type	
		ALNR	Text in DB4	TYP-number	Text in DB5
214.0	208				
1	209				
2	210				
3	211				
4	212				
5	213				
6	214				
7	215				
215.0	216				
1	217				
2	218				
3	219				
4	220				
5	221				
6	222				
7	223				

Error flag	assignment in DB7 DW	Fault area		Fault type	
		ALNR	Text in DB4	TYP- number	Text in DB5
216.0	224				
1	225				
2	226				
3	227				
4	228				
5	229				
6	230				
7	231				
217.0	232				
1	233				
2	234				
3	235				
4	236				
5	237				
6	238				
7	239				

Error flag	assignment in DB7 DW	Fault area		Fault type	
		ALNR	Text in DB4	TYP-number	Text in DB5
218.0	240				
1	241				
2	242				
3	243				
4	244				
5	245				
6	246				
7	247				
219.0	248				
1	249				
2	250				
3	251				
4	252				
5	253				
6	254				
7	255				



PROGRAM STRUCTURE WITH DB

```

PB 1 :-HILFSFKT LENGTH : 29
PB 2 :-AL ERFA LENGTH : 21
FB 1 :-STATUS LENGTH : 186
FB 2 :- LENGTH : 257
FB 3 :- LENGTH : 381
FB 4 :- LENGTH : 432
FB 5 :- LENGTH : 53
FB 6 :- LENGTH : 40
FB 7 :- LENGTH : 57
FB 8 :- LENGTH : 36
FB 9 :- LENGTH : 85
FB 10 :- LENGTH : 85
FB 11 :- LENGTH : 131
FB 12 :-HILFSSIG LENGTH : 271
FB 16 :- LENGTH : 107
FB 17 :- LENGTH : 20
FB 22 :-DATANNC LENGTH : 402
FB 23 :-TASTANNC LENGTH : 162
FB 30 :- LENGTH : 66
FB 31 :-AL-ABFR LENGTH : 233
FB 32 :-ALANZ-ZI LENGTH : 93
FB 33 :-ALAN-TE LENGTH : 668
FB 34 :- LENGTH : 36
FB 112 :-FAN/BAN LENGTH : 93
FB 250 :- LENGTH : 42
FB 251 :- LENGTH : 579
OB 1 :- LENGTH : 8
OB 20 :- LENGTH : 8
OB 22 :- LENGTH : 8
OB 3 :- LENGTH : 258
OB 4 :- LENGTH : 125
OB 5 :- LENGTH : 125
OB 6 :- LENGTH : 261
OB 7 :- LENGTH : 150
OB 255 :- LENGTH : 253

```

```

LAENGE : PB 50
LAENGE : SB 0
LAENGE : FB 4515
LAENGE : OB 24
LAENGE : DB 1172
LAENGE : 5761

```

```

--OB 1--FB 1--FB 1-22222222
I I
I +-FB 12-22222222
I I
I +-FB 22-22222222
I I
I +-FB 23-22222222
I I
+-FB 2--FB112-22222222
I I
+-FB 31-22222222
I I
+-FB 32-22222222
I I
+-FB 33-22222222

```

```

--OB 20--FB 10-22222222
+-OB 22--FB 10-22222222

```

OB1 AG150S LAE=8

```

SEGMENT 1
0000 :SPA -HILFSFKT PB1
0001 :SPA -AL ERFA PB2
0002 :BE

```

HILFSFKT= PB 1 AL ERFA = PB 2

OB20 AG150S LAE=8

```

SEGMENT 1
0000 :SPA FB10
0001 NAME :GST-PC
0002 :BE

```

OB22 AG150S LAE=8

```

SEGMENT 1
0000 :SPA FB10
0001 NAME :GST-PC
0002 :BE

```

DATE 25.04.83	FUNCTION BLOCKS FOR SINUMERIK 8 WITH S5-150S	SIEMENS AG
	FUNCTION BLOCKS PACKAGE 6 FC9 371-4BA PROGRAM EXAMPLE 1	PG 670.7

DATE 25.04.83	FUNCTION BLOCKS FOR SINUMERIK 8 WITH S5-150S	SIEMENS AG
	FUNCTION BLOCKS PACKAGE 6 FC9 371-4BA PROGRAM EXAMPLE 1	PG 670.7

PE1 -HILFSFKT AG1506

LHE=29

STATUS SIGNAL DISPLAY

```

SEGMENT 1
0000 :SPA -STATUS FB1
0001 NAME :STATUS
0002 STAT : M 110.0 --STAT
0003 :***
    
```

STATUS = FB 1

CALL FB AUXILIARY SIGNALS

```

SEGMENT 2
0004 :SPA -HILFSSIG FB12
0005 NAME :HILFSSIG
0006 ST : -NULL --ST
0007 FRST : -NULL --FRST
0008 GSTA : -NULL --GSTA
0009 FAL : -FAL --FAL
000A DISM : -NULL --DISM
000B TUE : T 20 --TUE
000C :***
    
```

NULL = M 239.6 FAL = M 110.3

HILFSSIG= FB 12

CALL FB DATA OF NC

```

SEGMENT 3
0000 :SPA -DATANNC FB22
0001 NAME :DATANNC
0002 TI/W : T 10 --TI/W
0003 :***
    
```

DATANNC = FB 22

KEYBOARD ON NC

```

SEGMENT 4
0011 :SPA -TASTANNC FB23
0012 NAME :TASTANNC
0013 SPB : -NULL --SPB :BE
0014 KPC : -NULL --KPC
0015 ESP : -NULL --ESP
0016 APC : -NULL --APC
0017 :BE
    
```

NULL = M 239.6

TASTANNC= FB 23

PE1 -HILFSFKT AG1506

LHE=21

ERROR/STATUS-MESSAGE

```

SEGMENT 1
0000 :SPA -FAN/BAN FB112
0001 NAME :FAN/BAN
0002 :***
    
```

FAN/BAN = FB 112

ALARM-INTERROGATION

```

SEGMENT 2
0003 :SPA -AL-ABFR FB31
0004 NAME :AL-ABFR
0005 F : A 6 0 F A 6 0
0006 :***
    
```

AL-ABFR = FB 31

ALARM-DISPLAY-NUMBER

```

SEGMENT 3
0007 :SPA -ALANZ-ZI FB32
0008 NAME :ALANZ-ZI
0009 :***
    
```

ALANZ-ZI = FB 32

ALARM-DISPLAY-TEXT

```

SEGMENT 4
000A :SPA -ALAN-TE FB33
000B NAME :ALAN-TE
000C FAN : -FAN --FAN :BE
000D BAN : -BAN --BAN
000E SAN : -NULL --SAN
000F :BE
    
```

FAN = M 110.1 BAN = M 110.2 NULL = M 239.6

ALAN-TE = FB 33

DATE 25.04.83	FUNCTION BLOCKS FOR SINUMERIK 8 WITH S5-150S	SIEMENS AG
	FUNCTION BLOCKS PACKAGE 6 FC9 371-4BA PROGRAM EXAMPLE 1	PG 670.7

DATE 25.04.83	FUNCTION BLOCKS FOR SINUMERIK 8 WITH S5-150S	SIEMENS AG
	FUNCTION BLOCKS PACKAGE 6 FC9 371-4BA PROGRAM EXAMPLE 1	PG 670.7

SEGMENT 1

NAME :FAN/BAN

```

0005 :UN M 238.1
0006 :UN -FMQ M 238.3
0007 :SPB =WEIT
0008 :L K80
0009 :T MB131
000A :R -UEBE F02 A 6.1
000B :R -UEBE F03 A 6.2
000C :R -UEBE F01 A 6.3
000D WEIT :U -AL1/BM1 E 6.0
000E : = M 188.0
000F : = M 204.0
0010 :U -AL2/BM2 E 6.1
0011 : = M 188.1
0012 : = M 204.1
0013 :U -AL3/BM3 E 6.2
0014 : = M 188.2
0015 : = M 204.2
0016 :U -AL4/BM4 E 6.3
0017 : = M 188.3
0018 : = M 204.3
0019 :U -AL5/BM5 E 6.4
001A : = M 188.4
001B : = M 204.4
001C :U -AL6/BM6 E 6.5
001D :S -AL F0:2 M 130.0
001E : = M 204.5
001F :U -AL7/BM7 E 6.6
0020 :S -AL F0:3 M 130.1
0021 : = M 204.6
0022 :U -AL8/BM8 E 6.7
0023 :S -AL F0:1 M 130.2
0024 : = M 204.7
0025 :***
    
```

```

FMQ = M 238.3 UEBE F02= A 6.1 UEBE F03= A 6.2 UEBE F01= A 6.3
AL1/BM1 = E 6.0 AL2/BM2 = E 6.1 AL3/BM3 = E 6.2 AL4/BM4 = E 6.3
AL5/BM5 = E 6.4 AL6/BM6 = E 6.5 AL F0:2 = M 130.0 AL7/BM7 = E 6.6
AL F0:3 = M 130.1 AL8/BM8 = E 6.7 AL F0:1 = M 130.2
    
```

SEGMENT 2

```

0026 :L KH0A09
0028 :T MW240
0029 :L KH1F80
002B :T MW242
002C :U -AL F0:2 M 130.0
002D :UN -UEBE F02 A 6.1
002E :SPB FB30
002F NAME :PSP-EING
0030 F/B : -NULL M 239.6
0031 UEBE : -UEBE F02 A 6.1
0032 :U -FMQ M 238.3
0033 :SPB =DELE
    
```

DATE 25.04.83	FUNCTION BLOCKS FOR SINUMERIK 8 WITH S5-150S	SIEMENS AG
	FUNCTION BLOCKS PACKAGE 6 FC9 371-4BA PROGRAM EXAMPLE 1	PG 670.7

```

0034 :L KH0A00
0036 :T MW240
0037 :L KH1EDA
0039 :T MW242
003A :U -AL F0:3 M 130.1
003B :UN -UEBE F03 A 6.2
003C :SPB FB30
003D NAME :PSP-EING
003E F/B : -NULL M 239.6
003F UEBE : -UEBE F03 A 6.2
0040 :U -FMQ M 238.3
0041 :SPB =DELE
0042 :L KH0A00
0044 :T MW240
0045 :L KH0047
0047 :T MW242
0048 :U -AL F0:1 M 130.2
0049 :UN -UEBE F01 A 6.3
004A :SPB FB30
004B NAME :PSP-EING
004C F/B : -NULL M 239.6
004D UEBE : -UEBE F01 A 6.3
004E :U -FMQ M 238.3
004F DELE :R -AL F0:2 M 130.0
0050 :R -AL F0:3 M 130.1
0051 :R -AL F0:1 M 130.2
0052 :U -FMA M 238.2
0053 :G -FMQ M 238.3
0054 :R -UEBE F02 A 6.1
0055 :R -UEBE F03 A 6.2
0056 :R -UEBE F01 A 6.3
0057 :BE
    
```

```

AL F0:2 = M 130.0 UEBE F02= A 6.1 NULL = M 239.6 FMQ = M 238.3
AL F0:3 = M 130.1 UEBE F03= A 6.2 AL F0:1 = M 130.2 UEBE F01= A 6.3
FMA = M 238.2
    
```

DATE 25.04.83	FUNCTION BLOCKS FOR SINUMERIK 8 WITH S5-150S	SIEMENS AG
	FUNCTION BLOCKS PACKAGE 6 FC9 371-4BA PROGRAM EXAMPLE 1	PG 670.7