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Jumper Settings of the Plug-in Units in BSC and TCSM2

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Summary of changes

Changes between document issues are cumulative. Therefore, the latest document issue contains all changes made to previous issues.

Changes made between issues 20-4 and 20-3

New ET2E variants added.

Changes made between issues 20-3 and 20-2

Information on PCU2-U updated. Editorial changes made.

Changes made between issues 20-2 and 20-1

Information on CP4C32 removed. Editorial changes made.

Changes made between issues 20-1 and 20-0

Editorial changes made; no changes in contents.

Changes made between issues 20-0 and 19-0

PCU2-U and WDW73 added.

Changed the title of the document into *Jumper Settings of the Plug-in Units in BSC and TCSM2.*

Editorial changes.

1 Overview to jumper settings of plug-in units in BSC and TCSM2

The following sections provide the basic information needed for setting the various jumpers of the plug-in units in the DX 200 applications: BSC, BSCi, BSC2 and BSC2i. The settings are referred to as standard when no changes are required, and alternative when the application delivered may need reconfiguration.

Presentation of the jumper settings

The jumper settings of the plug-in units are presented in tables. Each table contains the number of the jumper group (Wx), the necessary jumper setting, and a note concerning the jumper in question.

In the column Connection, a hyphen (-) is used to connect the pins of the jumper group that are to be connected together on the plug-in unit. The pins are symbolized by consecutive numbers. If there is only a hyphen and no numbers in the column, no jumper is set.

The column Note indicates the alternative selected with the jumper setting concerned. The alternatives are listed in the functional description of the plug-in unit concerned.

Implementation of the jumper settings

The jumper setting is made by means of jumper connector, sometimes by wire wraps or seldom by soldering.

The materials needed:

Jumper connector (U-connector)	code15291 00089
Wrapping wire 0,25 mm^2 yellow	code15126 33009
Wrapping wire 0,25 mm^2 white	code15126 33075
Solder wire 0,50 mm^2	code15126 21305

For more information on the hardware settings, see *Plug-in Unit Descriptions* and *Definition Dossiers of Plug-in Units* (not included in standard deliveries).

For information on the grounding of the DX 200 BSC2 equipment, see document *DX 200 Grounding Principles of PCM Trunk Circuit Cables* .

The setting information is provided for the plug-in units which have jumpers:

- *AC25–S*

- *AFS-T*

- *AS7-U/AS-7US*

- *AS7-V*

- *AS7-VA*

- *AS7-X*

- *CL1TG*

- *CL3TG*

- *CLAB*

- *COCEN*

- *CP4HX/CP4HL*

- *CP6LX*

- *CP6MX*

- *ET1E, versions 1 and 2*

- *ET1E, versions 3 and higher*

- *ET1E-C, version 1*

- *ET1E-C versions 2 and higher*

- *ET2A*

- *ET2A-T, ET2A-TB*

- *ET2E*

- *ET2E-C*

- *ET2E-S*

- *ET2E-SC*

- *ET2E-T, ET2E-TB*

- *ET2E-TC, ET2E-TCB*

- *HWAT, version 2*

- *HWAT, version 3*

- *MBIF-T*

- *MBIF-UA/MBIF-V*

- *PCU, PCU-S, PCU-T*

- *PCU2-U*

- *SERO-T, version 1*

- *SERO-T, version 2*

- *SCSIF*

- *SWCOP-S*

- *SW64B*

- *TRCO*

- *TRMC2*

- *TR12–T*

- *DAT2G/DAT4G*

- *DAT12G*

- *DAT12–S*

- *DAT20*

- *DDAD/CTAD/FDAD/WDAD/WDAD-S*

- *FDD-S*

- *FDD-S drive*

- *MO91*

- *WD3C500*

- *WD3C500 A03*

- *WD3C1G ESA*

- *WD31G SA*

- *WD3C4G*

- *WDW4*

- *WDW9-S*

- *WDW18*

- *WDW18-S, WDW36*

- *WDW73*

The setting instructions for the cartridges where the plug-in units are installed in are described in a separate document: *Jumper Settings of the Cartridges in BSC and TCSM2.*

Use of BSC-related terms

BSC is the general term for Base Station Controller equipment. BSC2A stands for an ANSI (US) version and BSC2E for an ETSI (EU) version of the second generation Nokia DX 200 BSC. *Jumper settings of the plug-in units in BSC and TCSM2* applies to both ETSI and ANSI versions of the BSC. The names BSC, BSC2 and BSC2E and BSC2A are interchangeable in this document.

The acronyms BSCi, BSC2, BSC2A, BSC2E and BSC2i are explained in the table below. When the information in the text is only applicable to one of the variants, the name of that specific variant is used.

Table 1.   The Nokia DX 200 BSC product family

BSC		Base Station Controller, a general term for all Nokia DX 200 BSC versions
BSCE		First generation Nokia DX 200 BSC
BSCi		High Capacity (upgraded and improved) version of the first generation Nokia DX 200 BSC
BSC2	BSC2A	American National Standards Institute (ANSI) version of the Nokia DX 200 BSC2
	BSC2E	European Telecommunications Standards Institute (ETSI) version of the Nokia DX 200 BSC2
BSC2i	BSC2i, ANSI version	American National Standards Institute (ANSI) version of the High Capacity Nokia DX 200 BSC2
	BSC2i, ETSI version	European Telecommunications Standards Institute (ETSI) version of the High Capacity Nokia DX 200 BSC2

2 AC25-S C08596
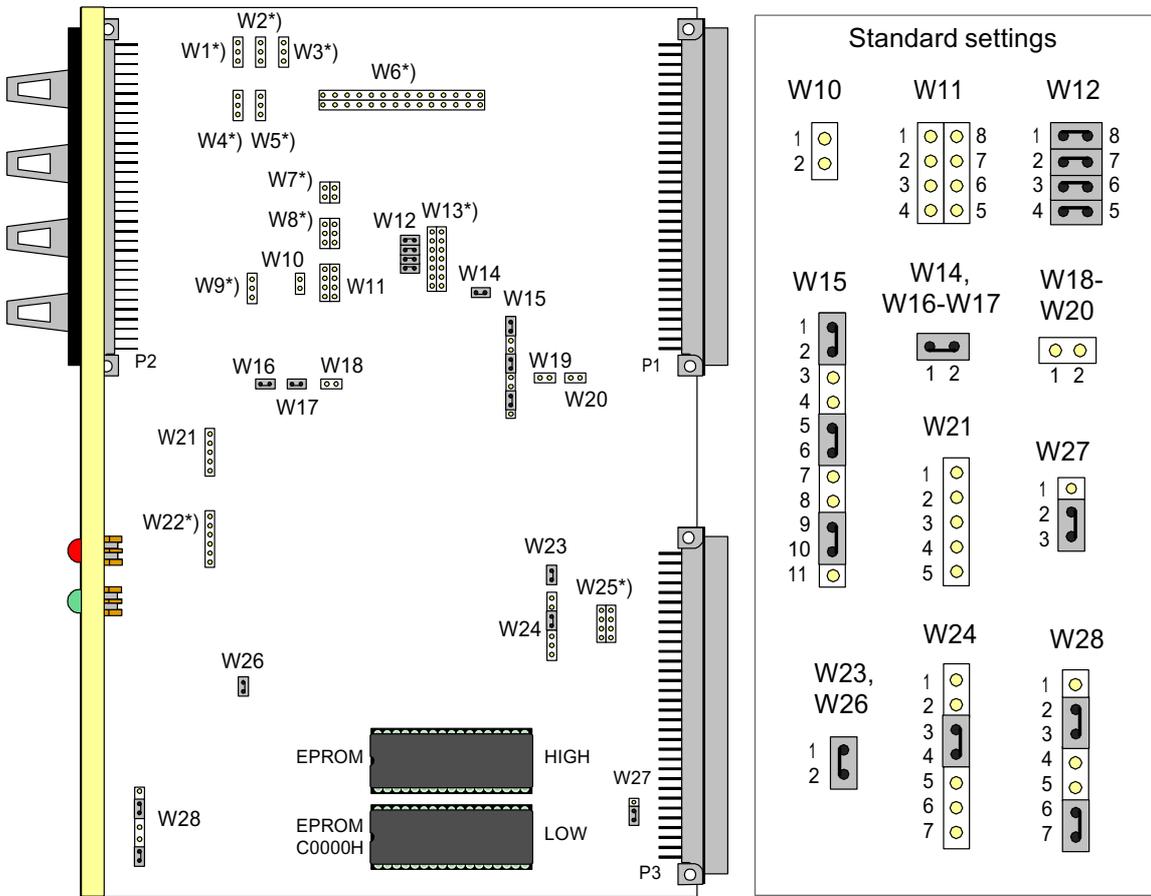
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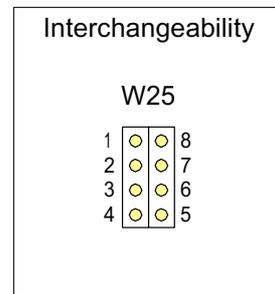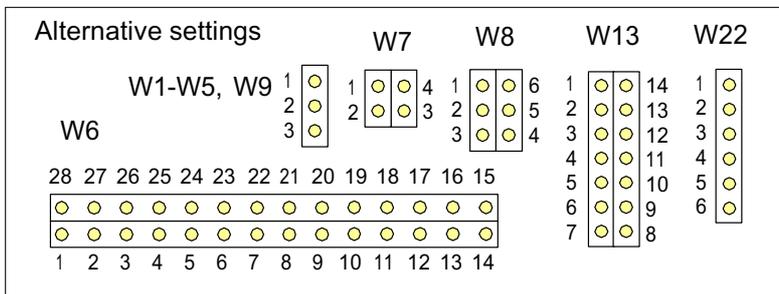
*) Alternative settings are presented in tables.

Figure 1.   Jumpers and read-only memory circuits of the plug-in unit AC25-S

Standard settings of AC25-S

Table 2.   Standard settings of AC25-S.

Jumper group	Jumper	Note
W10	-	Normal function (no memory banks)
W11	-	Normal function (no memory banks)
W12	1-8 2-7 3-6 4-5	Normal function (no memory banks)
W14	1-2	
W15	1-2 5-6 9-10	Address signals A21...A23 affect the selection of the base address
W16	1-2	Watchdog timer in operation
W17	1-2	
W18	-	Normal function (no memory banks)
W19	-	Normal function (no memory banks)
W20	-	Normal function (no memory banks)
W21	-	No jumpers. W21 is UART connector
W23	1-2	
W24	3-4	120 ns EPROM circuits are used (1 wait state in EPROM references of 80C286 processor)

Table 2. Standard settings of AC25-S. (cont.)

Jumper group	Jumper	Note
W26	1-2	Interrupt by HPC46400 watchdog timer to 80C286 processor allowed
W27	2-3	_INT signal to DMC bus in connector P3
W28	2-3 6-7	HPC46400 storage area selection not available

Selection of reduced V.24 interface bit timing and use of X.21 interface (jumper group W1)

Table 3. Selection of bit timing of the output data (AC25-S).

Selection criteria	Jumper	Note
X.21 interface in use. Bit timing of output data of limited V.24 interface from serial interface	W1:1-2	Default setting
Bit timing of output data of limited V.24 interface from AC25-S	W1:2-3	

Control of DCD circuit of the limited V.24 interface and the I circuit of the X.21 interface (W2)

Table 4. Selection of control of DCD circuit (AC25-S).

Selection criteria	Jumper	Note
DCD (limited V.24) and I (X.21) of HDLC channel 2 in serial interface control	W2:1-2	Default setting
Forced control of DCD and I into state ON	W2:2-3	

Control of DCD circuit of HDLC channel 1 (W3))

Table 5.   Selection of control of DCD circuit of HDLC channel 1 (AC25-S).

Selection criteria	Jumper	Note
DCD for HDLC channel 1 in serial interface control	W3:1-2	Default setting
Forced control of DCD into ON state	W3:2-3	

Bit timing of output data of HDLC channel 1 (W4, corresponds to the settings of jumper group W1)

Table 6.   Selection of bit timing of output data of HDLC channel 1 (AC25-S).

Selection criteria	Jumper	Note
Bit timing of output data of HDLC channel 1 from serial interface	W4:1-2	Default setting
Bit timing of output data of HDLC channel 1 from AC25-S	W4:2-3	

Control of DSR circuit of HDLC channel 1 (W5)

Table 7.   Selection of control of DSR circuit of HDLC channel 1 (AC25-S).

Selection criteria	Jumper	Note
DSR of HDLC channel 1 in serial interface control	W5:1-2	Default setting
Forced control of DSR into ON state	W5:2-3	

Utilization of the V.35 and X.21 interfaces (W6)

Table 8.   Selection of utilization of the V.35 and X.21 interfaces (AC25-S).

Selection criteria	Jumper	Note
Spare unit of V.35 and X.21 interfaces has not been connected parallel	W6:1-28	Spare unit = AC25-S plug-in unit
	2-27	
	3-26	
	4-25	
	4-25	
	4-25	
	5-24	
	5-24	
	6-23	
	7-22	
	8-21	
	9-20	
	10-19	
	11-18	
	12-17	
	13-16	
	14-15	
V.35 interface is used and spare unit has been connected parallel	W6:12-17	*)
	13-16	
	14-15	
X.21 interface is used and spare unit has been connected parallel	W6:1-28	*)

Table 8.   Selection of utilization of the V.35 and X.21 interfaces (AC25-S). (cont.)

Selection criteria	Jumper	Note
	2-27	
	3-26	
	4-25	
	5-24	
	6-23	
	7-22	
	8-21	
	9-20	
	10-19	
	11-18	

*) The W6 settings in both parallel AC25-Ss must be identical. If spare units are to be connected simultaneously parallel to the V.35 and X.21 interfaces, no settings are made in the W6 of either parallel AC25-S.

Bit timing for X.21 interface (W7)

Table 9.   Selection of bit timing for X.21 interface (AC25-S).

Selection criteria	Jumper	Note
Bit timing of X.21 from serial bus on S circuit	W7: -	Default setting
Bit timing of X.21 from AC25-S on S circuit	W7:1-4 2-3	*)

*) The bit timing is also given to the serial bus on the S circuit

Interface for HDLC channel 1 (W8, which must not have more than 1 jumper)

Table 10.   Selection of interface for HDLC channel 1 (AC25-S).

Selection criteria	Jumper	Note
V.24 is used as the interface of HDLC channel 1	W8:1-6	
V.35 is used as the interface of HDLC channel 1	W8:2-5	
V.36 is used as the interface of HDLC channel 1	W8:3-4	

Control for CTS circuit of HDLC channel 1 (W9)

Table 11.   Selection of control for CTS circuit of HDLC channel 1 (AC25-S).

Selection criteria	Jumper	Note
CTS of HDLC channel 1 in serial interface control	W9:1-2	Default setting
Forced control of CTS into ON state	W9:2-3	

Base address (W13)

Table 12.   Selection of base address (W13) in AC25-S.

Plug-in unit location	Jumper	Note
MC1C (OMU) slot 7	W13:1-14 2-13 5-10 6-9 7-8	Base address 3000000H plug-in unit index 2
MC1C (OMU) slot 8	W13:1-14 3-12 4-11 5-10 6-9 7-8	Base address 4000000H plug-in unit index 3

Functional state of UART interface (W22)

Table 13.   Selection of the functional state of UART interface (AC25-S).

Selection criteria	Jumper	Note
UART interface not in use	W22:1-2	Default setting
UART interface in use, UART bit timing of synchronic state from AC25-S on OXC circuit	W22:4-5	
UART interface in use, serial bus gives UART bit timing to AC25-S on IXC circuit	W22:5-6	

Interchangeability code (W25)

Table 14.   Setting of the interchangeability code (AC25-S).

Jumper	Interchangeability code														
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R
W25:1-8	X		X		X		X		X		X		X		X
2-7	X	X			X	X			X	X			X	X	
3-6	X	X	X	X					X	X	X	X			
4-5	X	X	X	X	X	X	X	X							

In the table, X = the corresponding connection is made, and blank = the corresponding connection is not made

3   AFS-T C08656
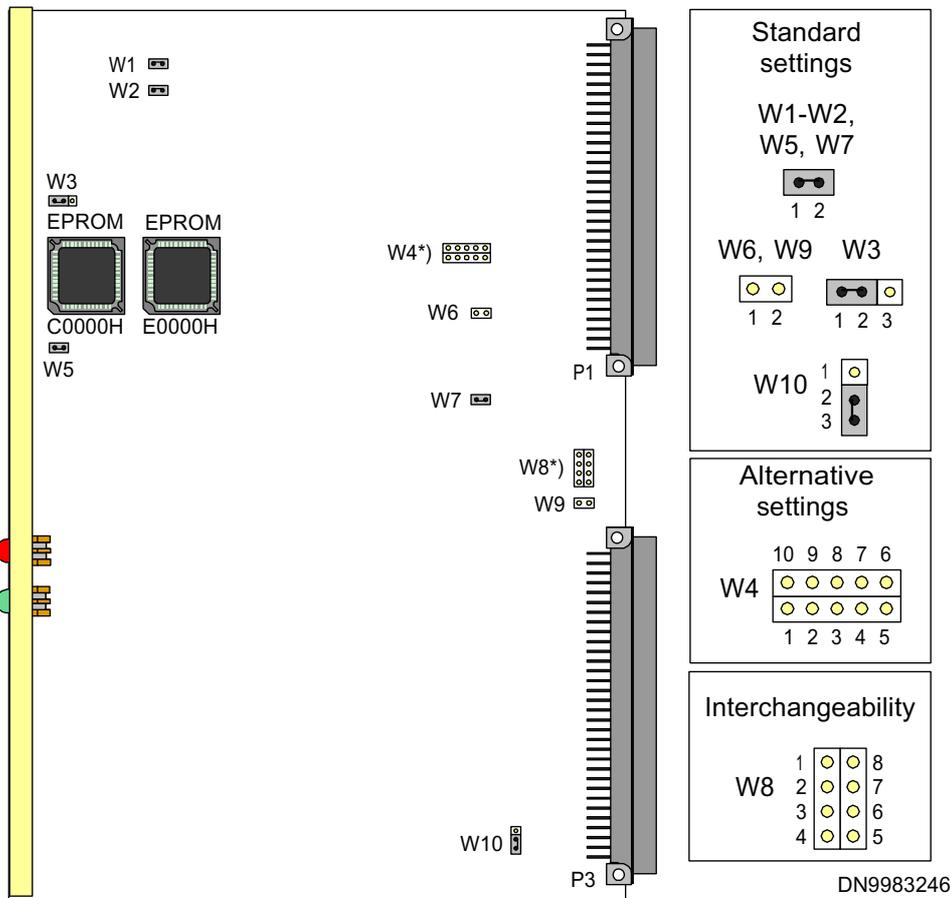
*) Alternative settings are presented in the tables below.

Figure 2.   Jumpers and read only memory circuits of plug-in unit AFS-T.

Standard settings

Table 15.   Standard settings.

Jumper group	Jumper	Note
W1	1-2	IC22 and IC23 EPROMs, size 64 kbytes x 16
W2	1-2	
W3	1-2	See note on W1
W5	1-2	
W6	-	_RESET signal of DCM bus does not restart the plug-in unit
W7	1-2	
W9	-	AFS-T does not give an interrupt to DCM bus
W10	2-3	AS7-type terminal assignment list

I/O base address (W4)

Table 16.   Selection of I/O base address of plug-in unit.

Selection criteria	Jumper	Note
AFS 0 (MC1C cartridge (BCSU) slot 8)	W4: 2-9 3-8 4-7 5-6	I/O base address FF80H
AFS 1, not yet in use in the MC1C cartridge	W4: 2-9 3-8 5-6	I/O base address FF90H
AFS 2, not yet in use in the MC1C cartridge	W4: 2-9 4-7 5-6	I/O base address FFA0H

Table 16.   Selection of I/O base address of plug-in unit. (cont.)

Selection criteria	Jumper	Note
AFS 3, not yet in use in in the MC1C cartridge	W4: 2-9 5-6	I/O base address FFB0H
AFS 4, not yet in use in the MC1C cartridge	W4: 3-8 4-7 5-6	I/O base address FFC0H
AFS 5, not yet in use in the MC1C cartridge	W4: 3-8 5-6	I/O base address FFD0H
AFS 6, not yet in use in the MC1C cartridge	W4: 4-7 5-6	I/O base address FFE0H
AFS 7, not yet in use in the MC1C cartridge	W4: 5-6	I/O base address FFF0H
AFS 8, not yet in use in the MC1C cartridge	W4: 2-9 3-8 4-7	I/O base address FF88H
AFS 9, not yet in use in the MC1C cartridge	W4: 2-9 3-8	I/O base address FF98H
AFS A, not yet in use in the MC1C cartridge	W4: 2-9 4-7	I/O base address FFA8H
AFS B, not yet in use in the MC1C cartridge	W4: 2-9	I/O base address FFB8H
AFS C, not yet in use in the MC1C cartridge	W4: 3-8 4-7	I/O base address FFC8H
AFS D, not yet in use in the MC1C cartridge	W4: 3-8	I/O base address FFD8H
AFS E, not yet in use in the MC1C cartridge	W4: 4-7	I/O base address FFE8H
AFS F, not yet in use in the MC1C cartridge	W4: -	I/O base address FFF8H

Interchangeability settings W8

Table 17.   Setting of the interchangeability code.

Jumper	Interchangeability code														
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R
W8: 1-8	X		X		X		X		X		X		X		X
2-7	X	X			X	X			X	X			X	X	
3-6	X	X	X	X					X	X	X	X			
4-5	X	X	X	X	X	X	X	X							

In the table, X = the corresponding connection is made, and blank = the corresponding connection is not made

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Note

Letters I, O, and Q may not be used as interchangeability codes.

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4 AS7–U C08530 / AS7–US C08905

DN9983258
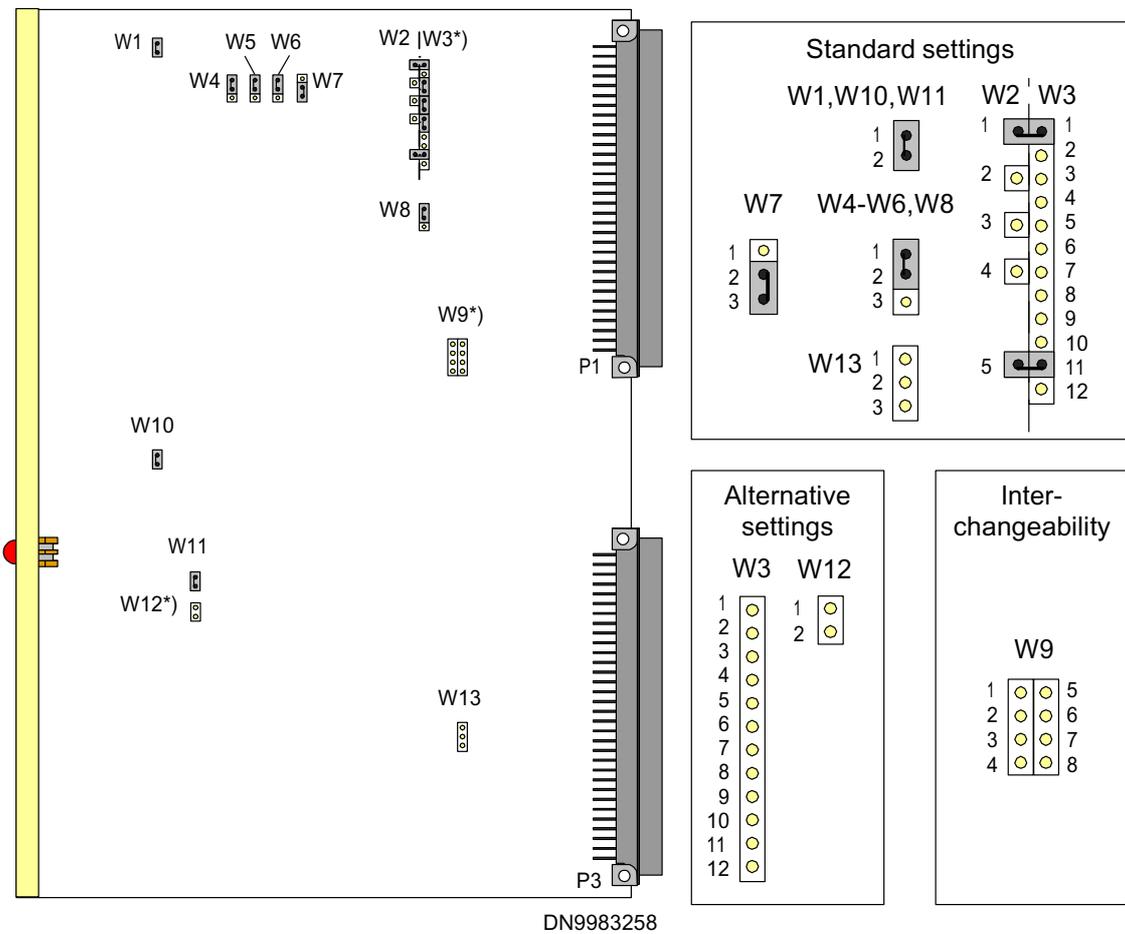
Figure 3.   Jumpers of plug-in unit of AS7-U and AS7-US.

*) Alternative settings are presented in the tables below.

Standard settings

Table 18.   Standard settings.

Jumper group	Jumper	Note
W1	1-2	Removed for test purposes
W2	5 - W3/11	Bit A19 not in use
	1 - W3/1	Bit A24 not in use
W4	1-2	READY signal not delayed
W5	1-2	READY signal not delayed
W6	1-2	READY signal not delayed
W7	2-3	One WAIT state is generated
W8	1-2	Memory area 1M visible to DCM bus
W10	1-2	Clock signal
W11	1-2	Watchdog timer.
W13	-	Line transmitters. Normal operation.

Memory space of the multi-protocol circuit (R8071) (W12)

Table 19.   Selection of the memory space of the multi-protocol circuit.

Selection criteria	Jumper	Note
AS7-U/AS7-US is used in digital X.25 interface	W12: -	R8071 memory space 64 kbytes
AS7-U/AS7-US is not used in digital X.25 interface	W12: 1-2	R8071 memory space 256 kbytes, Default setting

Base address (W3)

Table 20.   Selection of base address.

Plug-in unit location	Jumper	Note
MC1C (BCSU) slot 05	W3: 3-4 5-6 7-8	Base address 100000H
MC1C (OMU) slot 06, MC1C (BCSU) slot 06	W3: 3-4 5-6 9-10	Base address 200000H
MC1C (OMU) slot 07	W3: 3-4 5-6	Base address 300000H
MC1C (OMU) slot 08 MC1C (BCSU) slot 08	W3: 3-4 7-8 9-10	Base address 400000H

When referring to the base addresses seen from the main processor, the hexadecimal digit 80 or the old E is placed before the address

- When referring to the base addresses seen from the main processor, the hexadecimal digit 80 or the old E is placed before the address

Interchangeability settings

Table 21.   Setting of the interchangeability code.

Jumper	Interchangeability code														
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R
W9: 1-5	X	X	X	X	X	X	X	X							
2-6	X	X	X	X					X	X	X	X			
3-7	X	X			X	X			X	X			X	X	
4-8	X		X		X		X		X		X		X		X

In the table, X = the corresponding connection is made, and blank = the corresponding connection is not made

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Note

Letters I, O, and Q may not be used as interchangeability codes.

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5   AS7-V C08828
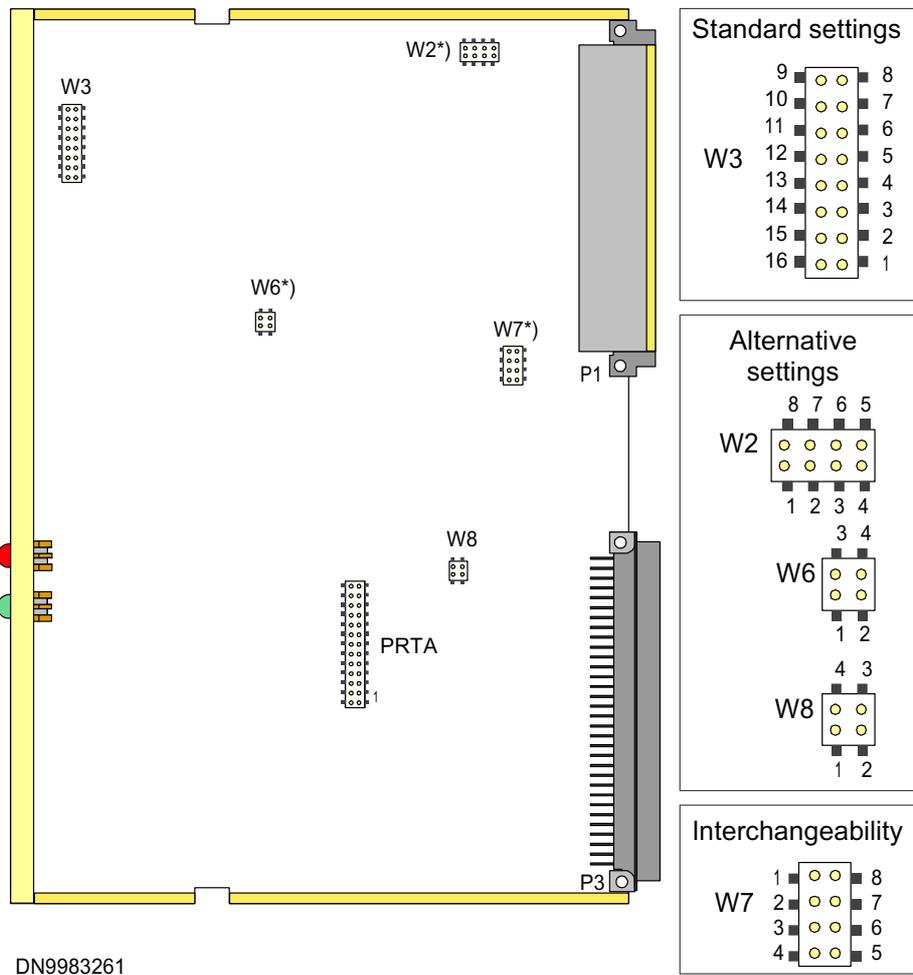
Figure 4.   Jumpers of plug-in unit of AS7-V.

*) Alternative settings are presented in the tables below.

Note

The PRTA service terminal connector is mounted on the board differently, orientation shown in the figure (pin 1).

Standard settings

The standard settings of the AS7-V are presented in the table below.

Table 22.   Standard settings.

Jumper	Notes
W3: -	Lattice's programming interface Right side: ispGAL Left side: 6 x 2032 Pins 12 and 5 cut

Selection of timing signal

Table 23.   Selection of timing signal.

Jumper	Note
W8:-	*Default setting:* Timing signal is selected by the changeover signal; selection of cartridge mechanics - no redundancy
W8:1-4	Timing signal is selected by the changeover signal; selection of subrack mechanics - 2n redundancy

Base address (W2, W6)

The base address is selected by jumper group W2 and the DMC bus (either 16-bit or 32-bit) is selected by jumper group W5.

Table 24.   Selection of base address.

Jumper group	Jumper	Selection criteria	Notes
W2	1-8 2-7 3-6	CC1C-T cartridge (CCSU, LSU, M, SSU, PAU) slot 05; CC3C-S cartridge (CCSU, LSU, SSU, PAU) slot 05; MC1C cartridge (OMU, BCSU) slot 5	Base address 100000H
	1-8 2-7 4-5	CC1C-T cartridge (CCSU, LSU, M, PAU) slot 06; CC3C-S cartridge (CCSU, LSU, SSU, PAU) slot 06; MC1C cartridge (OMU, BCSU) slot 6	Base address 200000H
	1-8 2-7	CC1C-T cartridge (LSU, SSU,PAU) slot 07; CC3C-S cartridge (LSU, SSU, PAU), slot 07; MC1C cartridge (OMU, BCSU) slot 7	Base address 300000H
	1-8 3-6 4-5	CC1C-T cartridge (SSU) slot 08; MC1C cartridge (OMU, BCSU) slot 8	Base address 400000H
	1-8 3-6	CC1C-T cartridge (SSU) slot 09; MC1C cartridge (OMU, BCSU) slot 9	Base address 500000H
	1-8	CC1C-T cartridge (SSU) slot 11	Base address 700000H
	2-7 3-6	CC1C-T cartridge (SSU) slot 13	Base address 900000H
	2-7 4-5	CC1C-T cartridge (SSU) slot 14	Base address A00000H
W6	1-2 3-4	Used in 16-bit DMC-bus	DMC-bus memory space 32 Mbytes (default in BSC)
	-	Used in 32-bit DMC-bus	DMC-bus memory space 1 Gigabyte

When referring to the base addresses seen from the main processor, the DMC-bus basic value of 80000000H should be added to the values in the table above.

Interchangeability settings

Table 25. Setting of the interchangeability code.

Jumper	Interchangeability code														
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R
W7: 1-8	X		X		X		X		X		X		X		X
2-7	X	X			X	X			X	X			X	X	
3-6	X	X	X	X					X	X	X	X			
4-5	X	X	X	X	X	X	X	X							

In the table, X = the corresponding connection is made, and blank = the corresponding connection is not made

Note

Letters I, O, and Q may not be used as interchangeability codes.

6   AS7-VA C83368

Jumper groups and LEDs of the AS7-VA plug-in unit are presented in the figure below.
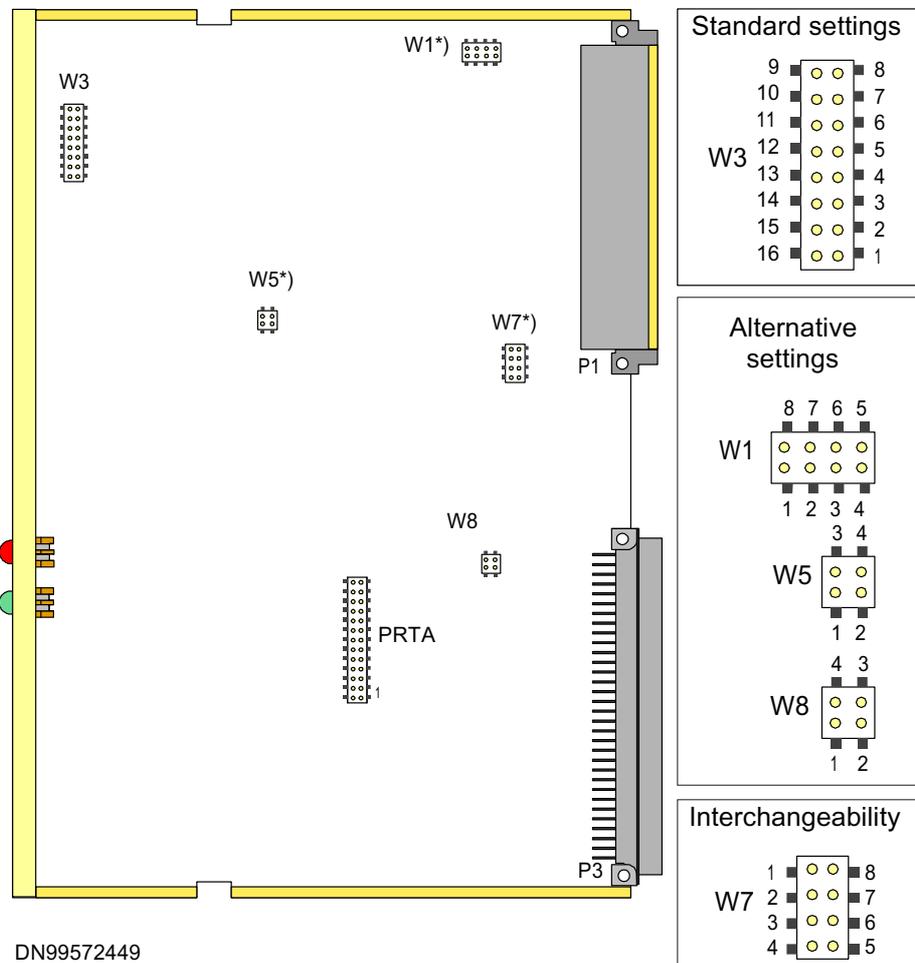
Figure 5.   Jumpers and LEDs of the AS7-VA plug-in unit.

Standard settings

The standard settings of the AS7-VA are presented in the table below.

Table 26.   Standard settings.

Jumper	Notes
W3: -	Lattice's programming interface Right side: ispGAL Left side: 6 x 2032 Pins 12 and 5 cut

Selection of timing signal

Table 27.   Selection of timing signal.

Jumper	Note
W8:-	*Default setting:* Timing signal is selected by the changeover signal; selection of cartridge mechanics - no redundancy
W8:1-4	Timing signal is selected by the changeover signal; selection of subrack mechanics - 2n redundancy

Base address (W1, W5)

The base address is selected by jumper group W1 and the DMC bus (either 16-bit or 32-bit) is selected by jumper group W5.

Table 28.   Selection of base address.

Jumper group	Jumper	Selection criteria	Notes
W1	1-8 2-7 3-6	CC1C-T cartridge (CCSU, LSU, M, SSU, PAU) slot 05; CC3C-S cartridge (CCSU, LSU, SSU, PAU) slot 05; MC1C cartridge (OMU, BCSU) slot 05	Base address 100000H

Table 28.   Selection of base address. (cont.)

Jumper group	Jumper	Selection criteria	Notes
	1-8 2-7 4-5	CC1C-T cartridge (CCSU, LSU, M, PAU) slot 06; CC3C-S cartridge (CCSU, LSU, SSU, PAU) slot 06; MC1C cartridge (OMU, BCSU) slot 06	Base address 200000H
	1-8 2-7	CC1C-T cartridge (LSU, SSU,PAU) slot 07; CC3C-S cartridge (LSU, SSU, PAU), slot 07; MC1C cartridge (OMU, BCSU) slot 07	Base address 300000H
	1-8 3-6 4-5	CC1C-T cartridge (SSU) slot 08; MC1C cartridge (OMU, BCSU) slot 08	Base address 400000H
	1-8 3-6	CC1C-T cartridge (SSU) slot 09; MC1C cartridge (OMU, BCSU) slot 09	Base address 500000H
	1-8	CC1C-T cartridge (SSU) slot 11	Base address 700000H
	2-7 3-6	CC1C-T cartridge (SSU) slot 13	Base address 900000H
	2-7 4-5	CC1C-T cartridge (SSU) slot 14	Base address A00000H
W5	1-2 3-4	Used in 16-bit DMC bus	DMC bus memory space 32 MB (default in BSC)
	-	Used in 32-bit DMC bus	DMC bus memory space 1 Gigabyte

When referring to the base addresses seen from the main processor, the DMC bus basic value of 80 000 000 H should be added to the values in the table above.

Interchangeability settings

Table 29.   Setting of the interchangeability code.

Jumper	Interchangeability code														
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R
W7 1-8	X		X		X		X		X		X		X		X
2-7	X	X			X	X			X	X			X	X	
3-6	X	X	X	X					X	X	X	X			
4-5	X	X	X	X	X	X	X	X							

In the table, X = the corresponding connection is made, and blank = the corresponding connection is not made

Note

The use of letters I, O and Q as interchangeability codes is not allowed.

PRTA connection

The PRTA service terminal connector (jumper group W9) is mounted on the board differently, orientation shown in the figure *Jumpers and LEDs of the AS7-VA plug-in unit* (pin 1).

7   AS7-X C73430
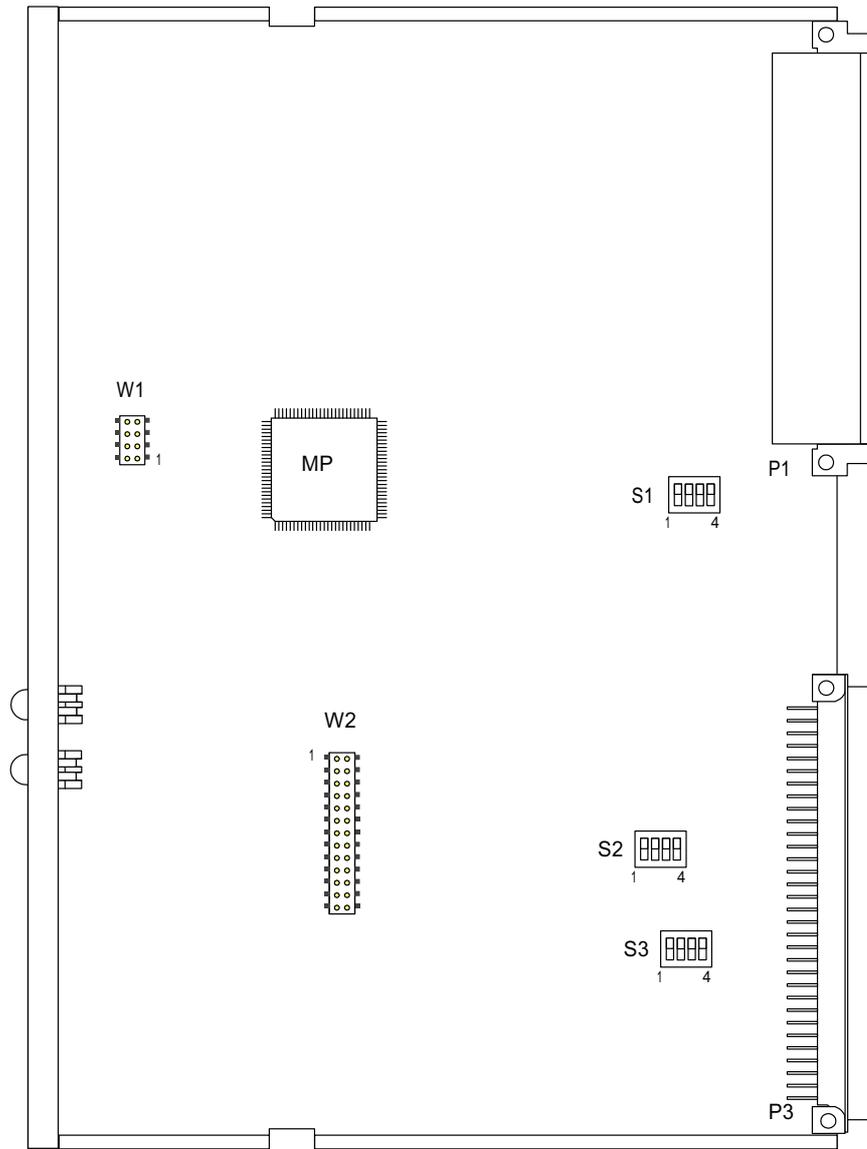
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Figure 6.   Jumper blocks and switches of the AS7-X plug-in unit

Jumper block W1 is a JTAG programming connector with which the Lattice circuits are programmed. No jumpers set here.

Jumper block W2 is a PRTA connector. No jumpers set here.

Switch S1 is used for setting the base address, S2 for the interchangeability code and S3 for the timing signal and type of DMC bus.The use of switches S1, S2 and S3 is presented in the tables below.

Setting the base address (S1)

Switch S1 is used for setting the base address selection for the AS7-X plug-in unit installed in certain slot in OMU or BCSU.

Note

Switch 1 = LSB and switch 4 = MSB.

ON = the switch is in the upper position, OFF = the switch is in the lower position.

Table 30.   S1, selection of the base address of the DMC bus.

Base +	Use	1 (LSB)	2	3	4 (MSB)
000000H		OFF	OFF	OFF	OFF
100000H	Slot 5	ON	OFF	OFF	OFF
200000H	Slot 6	OFF	ON	OFF	OFF
300000H	Slot 7	ON	ON	OFF	OFF
400000H	Slot 8	OFF	OFF	ON	OFF
500000H	Slot 9	ON	OFF	ON	OFF
600000H		OFF	ON	ON	OFF
700000H		ON	ON	ON	OFF
800000H		OFF	OFF	OFF	ON
900000H		ON	OFF	OFF	ON
A00000H		OFF	ON	OFF	ON
B00000H		ON	ON	OFF	ON
C00000H		OFF	OFF	ON	ON

Table 30.   S1, selection of the base address of the DMC bus. (cont.)

Base +	Use	1 (LSB)	2	3	4 (MSB)
D00000H		ON	OFF	ON	ON
E00000H		OFF	ON	ON	ON
F00000H		ON	ON	ON	ON

Setting the interchangeability code (S2)

Table 31.   S2, selection of the interchangeability code.

Code	Jumper settings			
	1 (LSB)	2	3	4 (MSB)
A	OFF	OFF	OFF	OFF
B	ON	OFF	OFF	OFF
C	OFF	ON	OFF	OFF
D	ON	ON	OFF	OFF
E	OFF	OFF	ON	OFF
F	ON	OFF	ON	OFF
G	OFF	ON	ON	OFF
H	ON	ON	ON	OFF
J	OFF	OFF	OFF	ON
K	ON	OFF	OFF	ON
L	OFF	ON	OFF	ON
M	ON	ON	OFF	ON
N	OFF	OFF	ON	ON
P	ON	OFF	ON	ON
R	OFF	ON	ON	ON

Setting the timing signal and type of DMC bus (S3)

Table 32.   S3, selection of timing signal and type of DMC bus.

Selection	Explanation
S3-1	Selection of timing signal either for cartridge mechanics (no redundancy) or for subrack mechanics (2n redundancy). ON: When the switch is closed, 2n redundant timing signal is selected OFF: When the switch is open, non-redundant timing signal is selected. Default for BSC.
S3-2	Selection of either 32-bit or 16-bit DMC bus. OFF: When the switch is open, the 32-bit bus selected ON: When the switch is closed, the 16-bit bus selected. Default for BSC.
S3-3	Not in use
S3-4	Not in use

8   CL1TG C08614
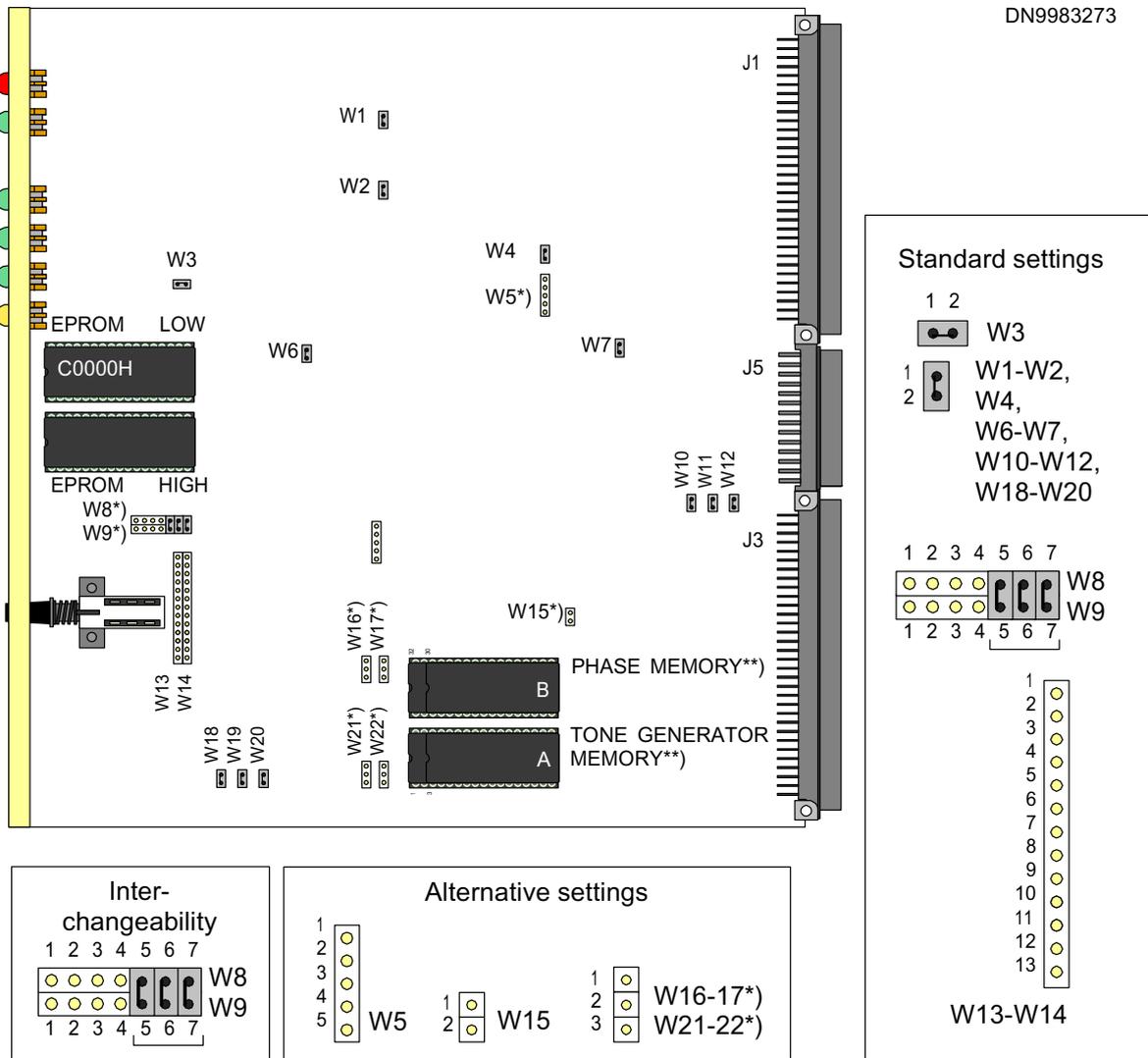
Figure 7.   Jumper pins and read only memory circuits of plug-in unit CL1TG.

*) Alternative settings are presented in the tables below.; pins 5, 6, 7 of W7 and W8 are standard

**) There are two different sizes of read-only memory circuits of the phase and tone generator memories; 28-pole (256 kbit), e.g. TON-FIA or 32-pole (1 Mbit/2 Mbit/4 Mbit), e.g. TON-GBA

Standard settings

Table 33.   Standard settings.

Jumper group	Jumper	Note
W1	1-2	
W2	1-2	
W3	1-2	
W4	1-2	
W6	1-2	
W7	1-2	
W8	5-W9/5 6-W9/6 7-W9/7	The variant number is 00H of the basic hardware product, i.e. of the product to be set
W10	1-2	
W11	1-2	
W12	1-2	
W13	-	Connector to test adapter of processor (PRTA) with W14
W14	-	Connector to test adapter of processor (PRTA) with W13
W18 W19 W20	1-2 1-2 1-2	

VCXO (oscillator) control (W5)

Table 34.   Selection of VCXO (oscillator) control.

Selection criteria	Jumper	Note
Oscillator control is changed to operate into opposite direction	W5: 1-2	
A digital phase lock controls the oscillator	W5: 2-3	Default setting
Oscillator controlled manually	W5: 4-5	

Interchangeability code (8 and 9, pins 1...4)

Table 35.   Selection of the interchangeability code.

Jumper	Interchangeability code														
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R
W8/1-W9/1	X		X		X		X		X		X		X		X
W8/2-W9/2	X	X			X	X			X	X			X	X	
W8/3-W9/3	X	X	X	X					X	X	X	X			
W8/4-W9/4	X	X	X	X	X	X	X	X							

In the table, X = the corresponding connection is made, and blank = the corresponding connection is not made

Note

Letters I, O, and Q may not be used as interchangeability codes.

Jumpers W15, W16, W17, W21 and W22 (selection according to memory size)

Table 36.   Memory size selection.

Selection criteria	Jumper	Note
Phase memory and Tone generator size is 256 kbit	W15: -	TON-FIA 8690 A1 B1
	W16: 2-3	
	W17: 2-3	Prom type 27256, 28 pins
	W21: 1-2	
	W22: 1-2	

Table 37.   Memory size selection.

Selection criteria	Jumper	Note
Phase memory size is 1 Mbit Tone generator memory size is 2 Mbit	W15: 1-2	TON-FIA 8690 A2 B2
	W16: 2-3	
	W17: 1-2	Prom type
	W21: 2-3	Phase memory 27C1001, 32 pins
	W22: 2-3	Phase memory 27C2001, 32 pins

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9   CL3TG C08826
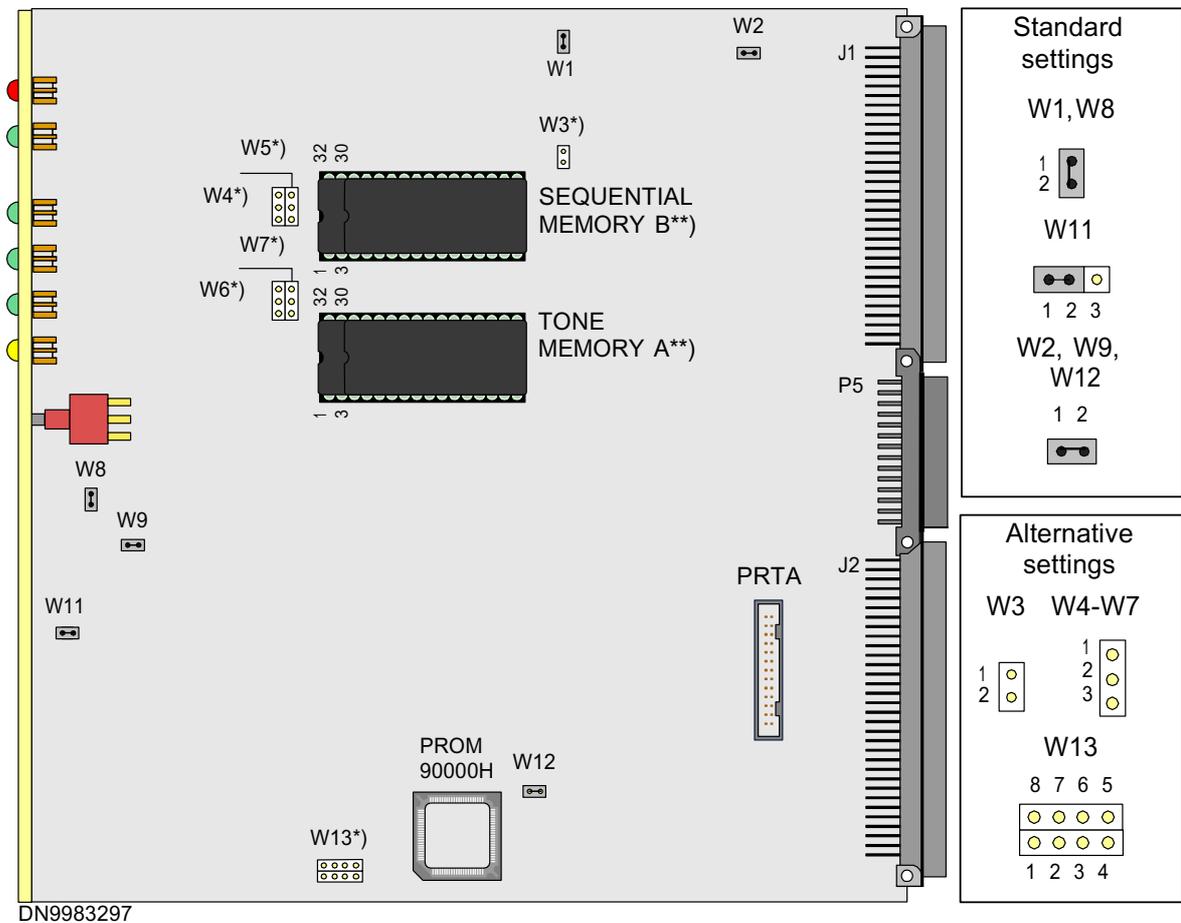
Figure 8.   Jumpers and EPROM circuits of plug-in units CL3TG.

*) Alternative settings are presented in the tables below.

**) There are two different sizes of read-only memory circuits of the sequential and tone generator memories; 28-pin (256 kbit) or 32-pin (1 Mbit /2 Mbit / 4 Mbit)

- The equipment instructions of the TON read memory circuits are presented separately in the definition dossier of the plug-in unit /2/.

Standard settings

Table 38.   Standard settings.

Jumper group	Jumper	Note
W1	1-2	
W2	1-2	
W8	1-2	
W9	1-2	
W10	-	Connector to test adapter of processor (PRTA)
W11	1-2	
W12	1-2	

Number of time slots used by the tone generator (W3)

Table 39.   Selection of the number of time slots used by the tone generator.

Selection criteria	Jumper	Note
28 time slots available	W3: -	TON-AEA icc A, TON-CNA icc up to B, TON-DEA icc up to B, TON-FIA icc A, TON-LKA icc A, TON-MYA icc A, TON-RUA icc A, TON-SEA icc up to B (icc = interchangeability code)
30 time slots available	W3: 1-2	Other interchangeability alternatives for TON products available, except those mentioned in Note column for '28 time slots' above

Capacity of the sequential memory (W4, and W5)

Table 40.   Selection of the capacity of the sequential memory.

Selection criteria	Jumper	Note
Sequential memory capacity 256 kbit	W4: 2-3, W5: 2-3	Sequential memory B = IC67; note that the number of the time slots used is selected with W3
Sequential memory capacity 1 Mbit	W4: 2-3, W5: 1-2	Sequential memory B = IC67; note that the number of the time slots used is selected with W3
Sequential memory capacity, 2 Mbit or 4 Mbit	W4: 1-2, W5: 1-2	Sequential memory B = IC67; note that the number of the time slots used is selected with W3

Capacity of the tone memory (W6 and W7)

Table 41.   Selection of the capacity of the tone memory.

Selection criteria	Jumper	Note
Tone memory capacity 256 kbit	W6: 1-2, W7: 1-2	Tone memory A = IC88
Tone memory capacity 1 Mbit	W6: 1-2, W7: 2-3	Tone memory A = IC88
Tone memory capacity 2 Mbit or 4 Mbit	W6: 2-3, W7: 2-3	Tone memory A = IC88

Capacity of the sequential and tone memory (W4, W5, W6, W7)
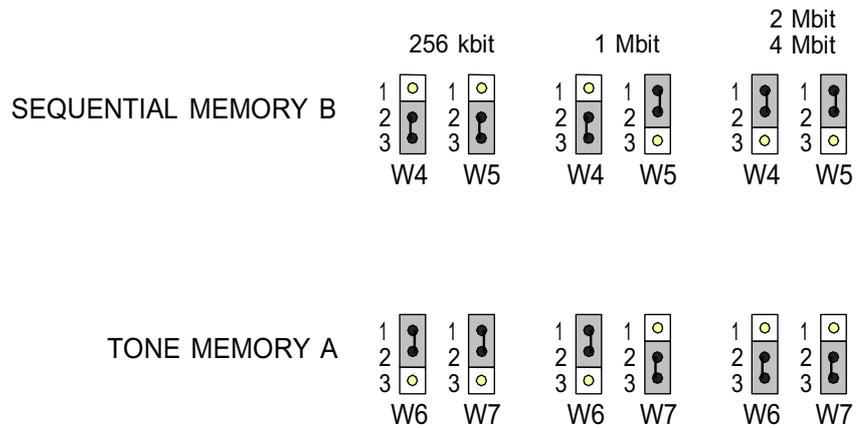
Figure 9.   Setting the capacity of the sequential memory and tone memory.

Interchangeability code (W13)

Table 42.   Selection of the interchangeability code.

Jumper	Interchangeability code														
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R
W13: 1-8	X	X	X	X	X		X		X		X		X		X
2-7	X	X			X	X			X	X			X	X	
3-6	X	X	X	X					X	X	X	X			
4-5	X	X	X	X	X	X	X	X							

In the table, X = the corresponding connection is made, and blank = the corresponding connection is not made

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Note

Letters I, O, and Q may not be used as interchangeability codes.

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10 CLAB C08661
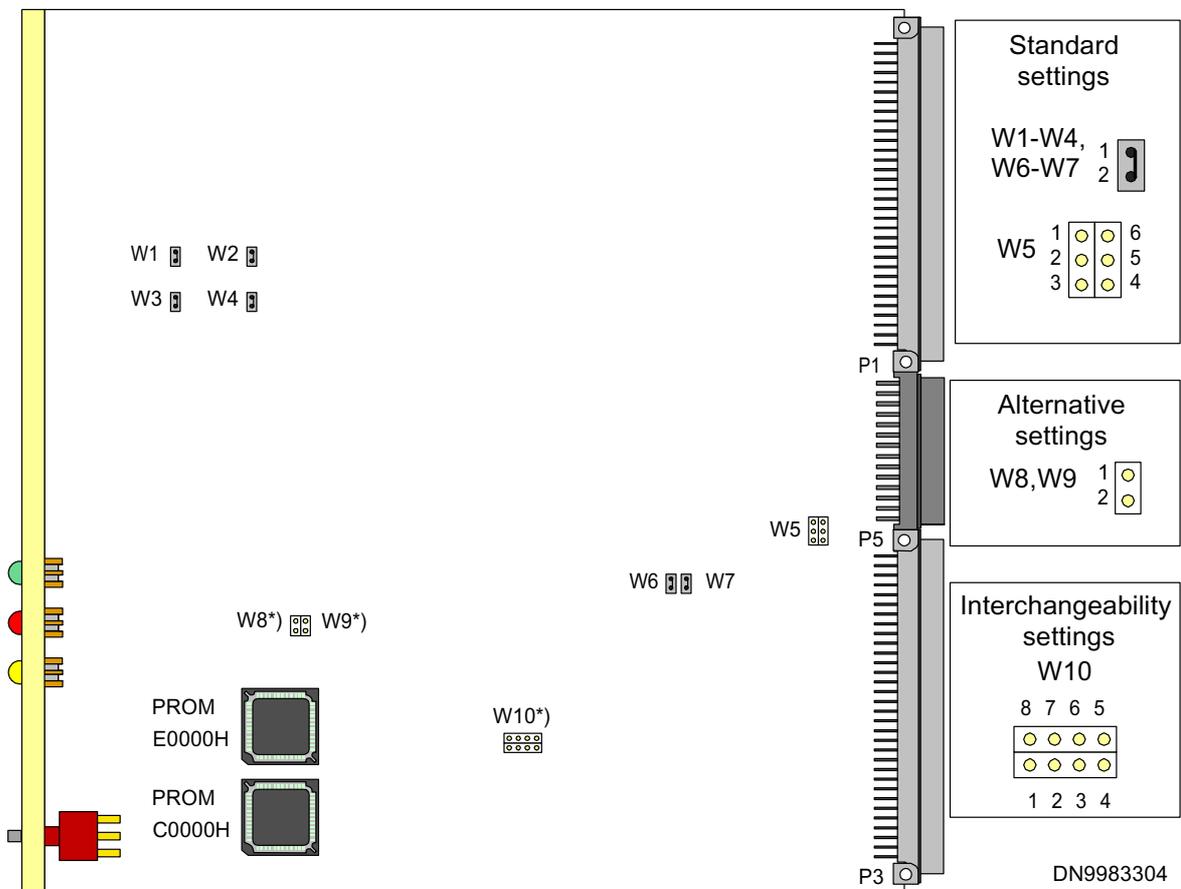
Figure 10.   Jumpers and read only memory circuits of plug-in unit CLAB.

*) Alternative settings are presented in the tables below; the plug-in unit is in vertical position

Standard settings

Table 43.   Standard settings.

Jumper group	Jumper
W1	1-2
W2	1-2
W3	1-2
W4	1-2
W5	-
W6	1-2
W7	1-2

The time constant of basic timing bus supervision (W8 and W9)

Table 44.   Selection of the time constant of basic timing bus supervision.

Selection criteria	Jumper	Note
Time constant of basic timing bus supervision is 2.5 ms	W8: 1-2 W9: 1-2	Alignment of CLAB to the 500 Hz multiframe alignment signal
Time constant of basic timing bus supervision is 220 µs	W8: - W9: -	*Default setting:* Alignment of CLAB to the 8 kHz frame alignment signal, default

Interchangeability code (W10)

Table 45.   Selection of the interchangeability code.

Jum- per	Interchangeability code														
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S

NOKIA

Table 45.   Selection of the interchangeability code. (cont.)

Jum-per	Interchangeability code															
W10: 1-8	X		X		X		X		X		X		X		X	
2-7	X	X			X	X			X	X			X	X		
3-6	X	X	X	X					X	X	X	X				
4-5	X	X	X	X	X	X	X	X								

In the table, X = the corresponding connection is made, and blank = the corresponding connection is not made

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Note

Letters I, O, and Q may not be used as interchangeability codes.

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11 COCEN C08669
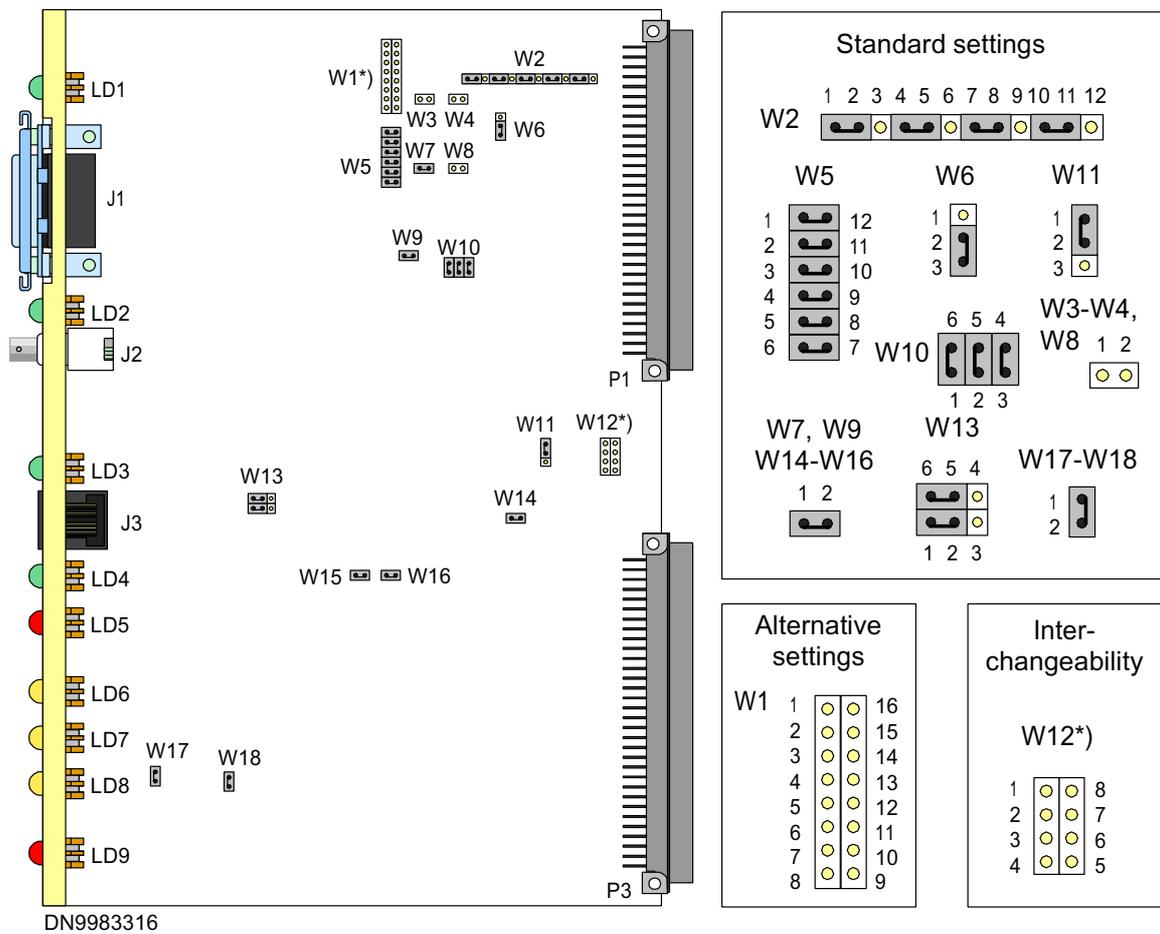
Figure 11.   Jumpers and standard settings of COCEN.

*) Optional settings are presented in the tables below.

Standard settings

Table 46.   Standard settings.

Jumper group	Jumper	Note
W2	1-2 4-5 7-8 10-11	Address signals A24, A23, A22 and A21 of the DMC bus affect the selection of base address
W3	-	Function without memory banks
W4	-	Function without memory banks
W5	1-12 2-11 3-10 4-9 5-8 6-7	Function without memory banks
W6	2-3	Expedited DMC bus is used
W7	1-2	
W8	-	Function without memory banks
W9	1-2	This jumper is irrelevant in a function without memory banks (the jumper need not be connected)
W10	1-6 2-5 3-4	These jumpers are irrelevant in a function without memory banks (the jumpers need not be connected)
W11	1-2	Link testing function of TPI interface used
W13	1-2 5-6	
W14	1-2	
W15	1-2	
W16	1-2	

Table 46.   Standard settings. (cont.)

Jumper group	Jumper	Note
W17	1-2	
W18	1-2	

Base address (W1)

Table 47.   Selection of base address.

Plug-in unit location	Jumper	Note
MC1C (OMU) slot 7	W1: 1-16 2-15 3-14 6-11 7-10 8-9	Base address 300000H
MC1C (OMU) slot 8	W1: 1-16 2-15 4-13 5-12 6-11 7-10 8-9	Base address 400000H

When you refer to base addresses as seen from the main processor, the base value 8000 0000H of DMC bus is placed before the addresses above.

Interchangeability code (W12)

Table 48.   Selection of the interchangeability code.

Jumper	Interchangeability code														
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R
W12: 1-8	X		X		X		X		X		X		X		X
2-7	X	X			X	X			X	X			X	X	
3-6	X	X	X	X					X	X	X	X			
4-5	X	X	X	X	X	X	X	X							

In the table, X = the corresponding connection is made, and blank = the corresponding connection is not made

Note

Letters I, O, and Q may not be used as interchangeability codes.

12 CP4HX C08792/CP4HL C08932

Jumpers and settings of the processor part CP4H
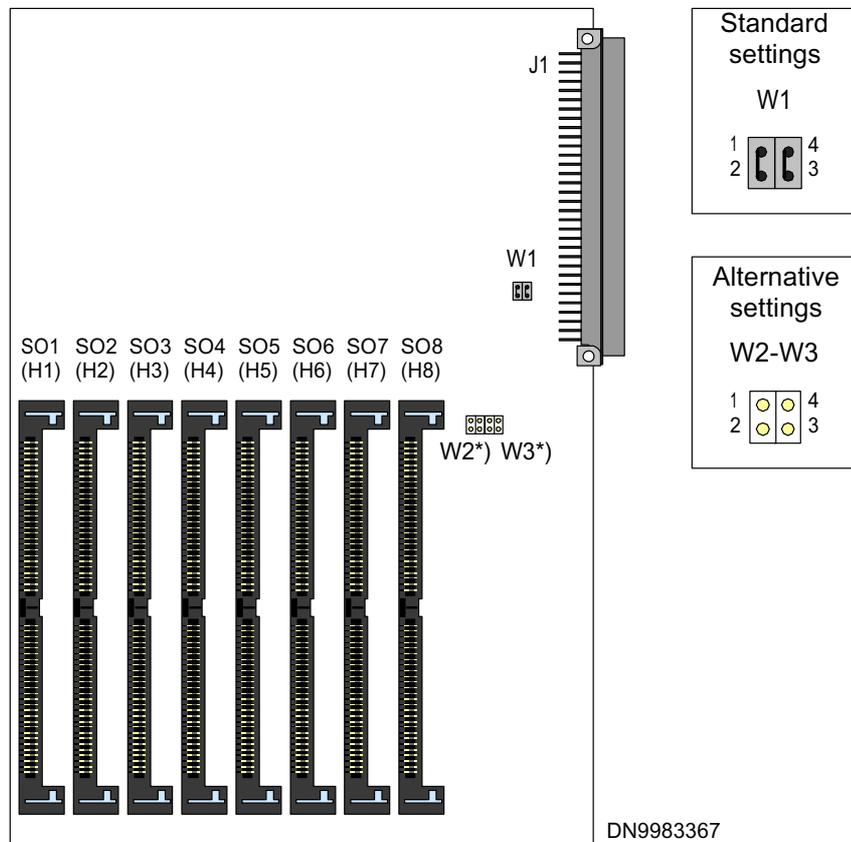
Figure 12.   Jumpers of processor part CP4H (CP4HX and CP4HL).

*) Alternative settings are presented in the table below.

Jumpers and settings of the processor part CP4HL
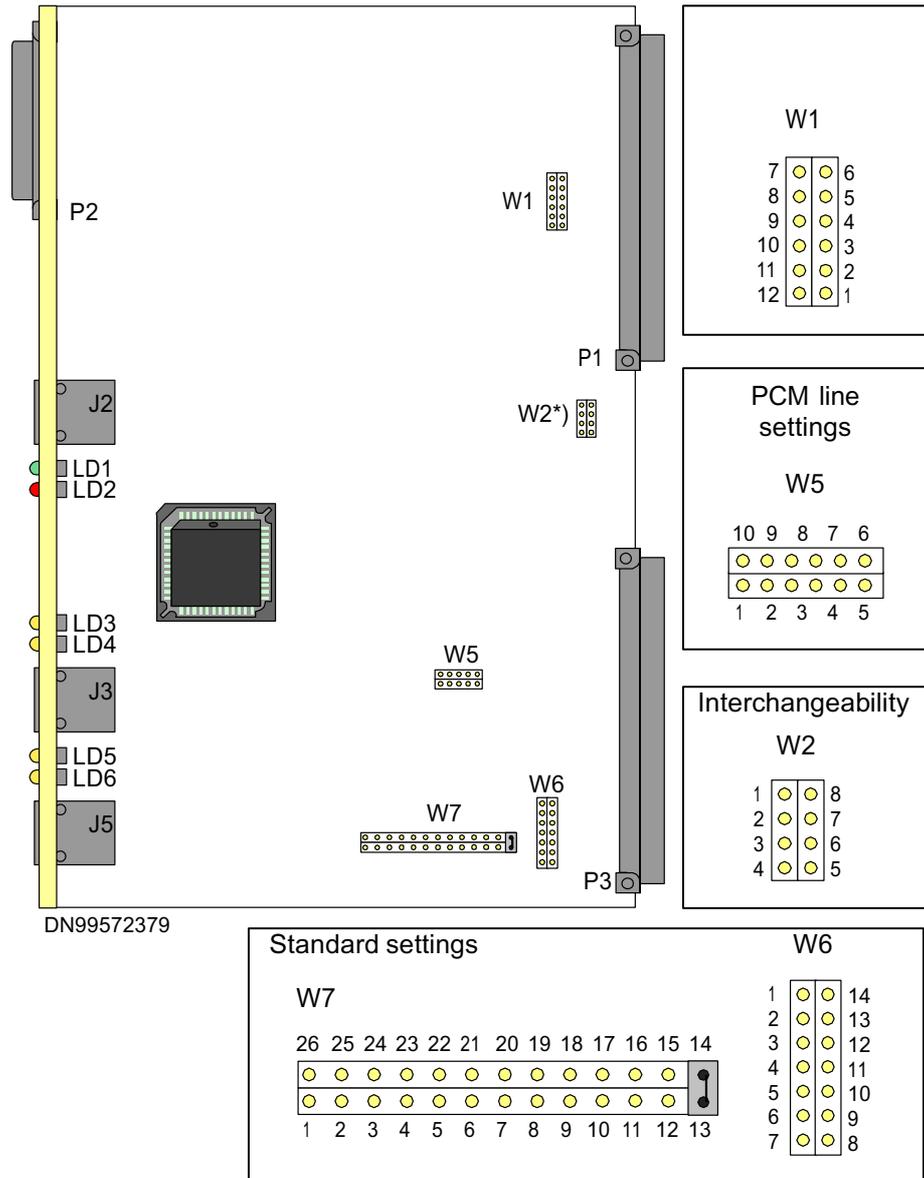
Figure 13.   Jumpers of processor part CP4HL.

*) Alternative settings are presented in the table below.

Standard settings of CP4HL

Table 49.   Standard settings (CP4HX and CP4HL).

Jumper group	Jumper	Note
W1	1-2 3-4	Normal clock frequency in use

DRAM memory size to be used for different DRAM module products (W2 and W3; DRAM module products MM4M, MM8M, MM16M and MM32M)

Table 50.   Selection of the DRAM memory size (MM4M, MM8M, and MM16M for CP4HX).

Size of DRAM memory	Jumper	Sockets SO4,SO8	Sockets SO3,SO7	Sockets SO2,SO6	Sockets SO1,SO5
8 Mbytes	W2:1-2 3-4 W3:3-4	MM4M			
16 Mbytes	W2:1-2 3-4 W3:3-4	MM4M	MM4M		
24 Mbytes	W2:1-2 3-4 W3:3-4	MM4M	MM4M	MM4M	
32 Mbytes	W2:1-2 3-4 W3:3-4	MM4M	MM4M	MM4M	MM4M
16 Mbytes	W2:1-2 W3:3-4	MM8M			
32 Mbytes	W2:1-2 W3:3-4	MM8M	MM8M		
48 Mbytes	W2:1-2 W3:3-4	MM8M	MM8M	MM8M	

Table 50.   Selection of the DRAM memory size (MM4M, MM8M, and MM16M for CP4HX). (cont.)

Size of DRAM memory	Jumper	Sockets SO4,SO8	Sockets SO3,SO7	Sockets SO2,SO6	Sockets SO1,SO5
64 Mbytes	W2:1-2 W3:1-2 3-4	MM8M	MM8M	MM8M	MM8M
32 Mbytes	W2:3-4 W3:3-4	MM16M			
64 Mbytes	W2:3-4 W3:1-2 3-4	MM16M	MM16M		
96 Mbytes	W2:3-4 W3:3-4	MM16M	MM16M	MM16M	
128 Mbytes	W2:3-4 W3:1-2	MM16M	MM16M	MM16M	MM16M

Table 51.   Selection of the DRAM memory size (MM16M and MM32M for CP4HX, and MM32M-S for CP4HL).

Size of DRAM memory	Jumper	Sockets SO4,SO8	Sockets SO3,SO7	Sockets SO2,SO6	Sockets SO1,SO5
64 Mbytes	W2: - W3:1-2 3-4	MM32M MM32M-S			
96 Mbytes	W2: - W3:1-2 3-4	MM32M	MM16M		
128 Mbytes	W2: - W3:1-2	MM32M MM32M-S	MM32M MM32M-S		
160 Mbytes	W2: - W3:1-2	MM32M	MM32M	MM16M	

NOKIA

Table 51.   Selection of the DRAM memory size (MM16M and MM32M for CP4HX, and MM32M-S for CP4HL). (cont.)

Size of DRAM memory	Jumper	Sockets SO4,SO8	Sockets SO3,SO7	Sockets SO2,SO6	Sockets SO1,SO5
192 Mbytes	W2: - W3:3-4	MM32M MM32M-S	MM32M MM32M-S	MM32M MM32M-S	
224 Mbytes	W2: - W3:3-4	MM32M	MM32M	MM32M	MM16M
256 Mbytes	W2: - W3: -	MM32M MM32M-S	MM32M MM32M-S	MM32M MM32M-S	MM32M MM32M-S

Jumpers and settings of the I/O part CPIO

Figure 14.   Jumpers and read-only memory circuits of I/O part CPIO (CP4HX and CP4HL).

Standard settings of CP4HX and CP4HL (CPIO)

Table 52.   Standard settings of CP4HX and CP4HL (CPIO).

Jumper group	Jumper	Note
W1	1-6	Operation of external cache is allowed
W2	1-2	DMC bus address area of dual port memory 000000H...03FFFFH
W3	2-3 6-7	EPROMs of 1Mbit or 4 Mbit
W4	2-5 3-4 6-7	Address signal A24 of DMC bus is in use (A24_LOW1M = A24)
W5	1-2	Always closed when there is only one CPU on DMC bus
W6	2-3	CTS always active (state 0)
W7	1-14 2-13 3-12 4-11 5-10 6-7 8-9	
W8	2-3	Selection of _INT17 signal
W9	1-2	Four-channel handling logic of the DMC bus
W10	2-3	CTS always active (state 0)
W11	1-8 2-7 3-6 4-5	
W12	2-3	Write protection of dual port memory is allowed
W13	1-2	2-level synchronization of_READY signal

13 CP6LX C71680

Figure 15.   Jumpers of the central processor CP6LX.

Alternative settings are presented in the tables below.

MBIF setting (J1)

Table 53.   MBIF setting.

Connection	Jumper	Meaning	Note
J5: 1-2	On	MBIF in use	Default
	Off	MBIF not used	

Interchangeability code (J1)

Table 54.   Interchangeability code settings.

Connection	Interchangeability code														
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R
J5: 3-4	X		X		X		X		X		X		X		X
5-6	X	X			X	X			X	X			X	X	
7-8	X	X	X	X					X	X	X	X			
9-10	X	X	X	X	X	X	X	X							

In the table, X = the corresponding connection is made, and blank = the corresponding connection is not made

Note

Letters I, O, and Q may not be used as interchangeability codes.

DMC bus speed (J4)

Jumper group J4 defines the DMC bus speed.

Table 55.   DMC bus speed setting.

Connection	Jumper	Meaning	Note
J4: 1-2	On	Subrack, slowest speed	Default
J4: 2-3	On	Cartridge	Do not use
	None	Fastest speed	

14 CP6MX

There are no jumpers on CP6MX. All settings are made using the microswitches in switch package SW1.

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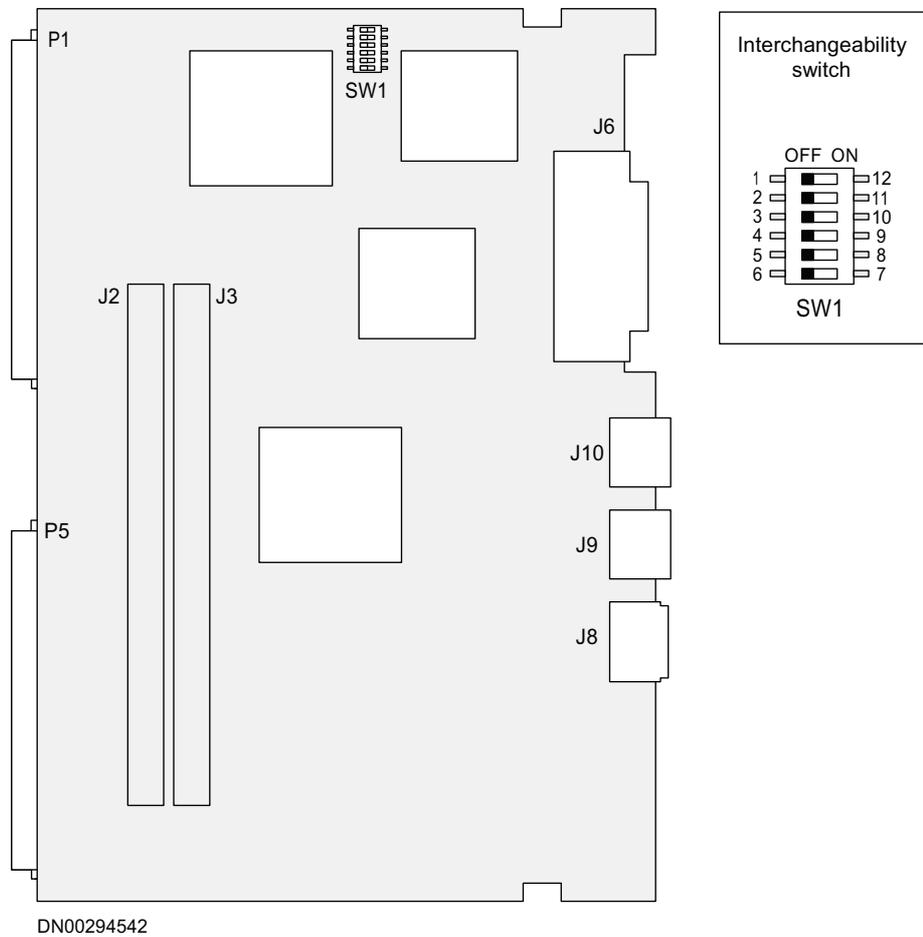
Figure 16.   Switch package of the central processor CP6MX.

Alternative settings are presented in the tables below.

SW1 switch settings

The Switch Block consists of a 6 position DIP switch. This switch contains the four Interchangeability code bits, the MBIF status, and the DMC bus speed setting. The interchangeability lines drive to "0" when the switches are OFF. The MBIF status drives the signal to "0" when switch is OFF. The DMC bus speed drives digital input 1 of the DMCIOB (see Special Configuration Register 40 – section 4.4.10). The slow speed corresponds to switch OFF. The fast speed corresponds to the switch ON. It is up to SW to read the digital inputs, and then set the DMC speed bit accordingly.

Table 56.   SW1 switch settings

SW1	Setting	Function
6-7	OFF	MBIF status; MBIF assembled. Default setting.
	ON	MBIF status; MBIF not assembled.
5-8	OFF	DMC bus speed; slow timing mode. Default setting.
	ON	DMC bus speed; fast timing mode.
4-9	See below	DMX Interchangeability code bit 0
3-10	See below	DMX Interchangeability code bit 1
2-11	See below	DMX Interchangeability code bit 2
1-12	See below	DMX Interchangeability code bit 3

Interchangeability code (SW1)

Table 57.   Interchangeability code settings, SW1.

Switch SW1	Interchangeability code														
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R
4-9	X	-	X	-	X	-	X	-	X	-	X	-	X	-	X
3-10	X	X	-	-	X	X	-	-	X	X	-	-	X	X	-
2-11	X	X	X	X	-	-	-	-	X	X	X	X	-	-	-

Table 57.   Interchangeability code settings, SW1. (cont.)

1-12	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-

In the table, X = the corresponding switch is set to OFF, and – = the corresponding switch is set to ON.

Note

Letters I, O, and Q may not be used as interchangeability codes.

15 ET1E C08517, versions 1 and 2
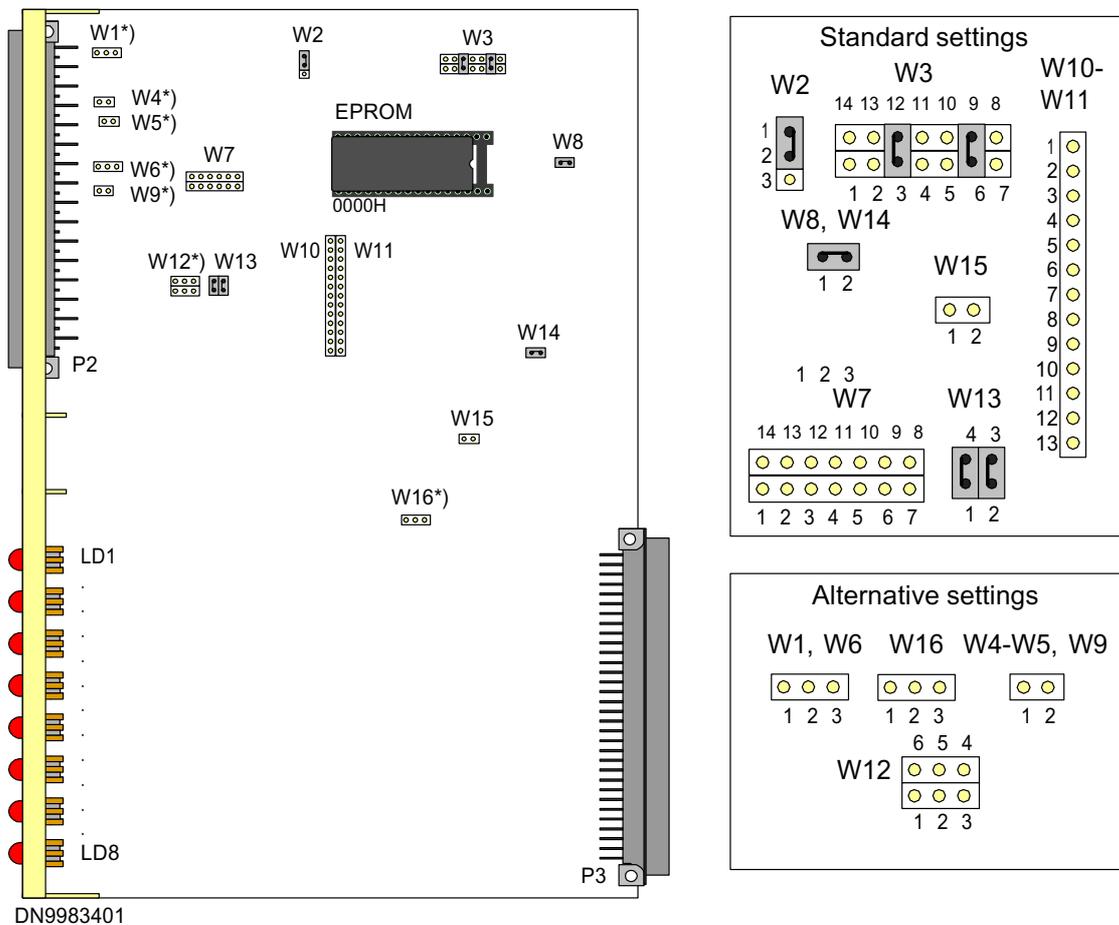
Figure 17. Jumpers and EPROM circuits of the plug-in unit ET1E.

*) Alternative settings are presented in the tables below.

Standard settings of ET1E, versions 1 and 2

Table 58.   Standard settings of ET1E, versions 1 and 2.

Jumper group	Jumper	Note
W2	1-2	RAM IC2; 32 kbytes x 8 or 128 kbytes x 8
W3	3-12 6-9	ROM IC7; 32 kbytes x 8
W7	-	Bits 1, 4, 5, 6, 7, 8 of the odd T0 in outgoing direction of transmission = "1"
W8	1-2	
W10	-	
W11	-	
W13	1-4 2-3	The filtering time of TCL interruption is 2 s
W14	1-2	
W15	-	Bit of the even T0 in outgoing direction of transmission B1 = "1"

TCL frequency setting (W16)

Table 59.   TCL frequency setting (W16)

Selection criteria	Jumper group	Note
TCL frequency is 8 kHz	W16:1–2	For cartridge mechanics, e.g. BSC, DX220
TCL frequency is 2.048 MHz	W16:2–3	For subrack mechanics, e.g. MSC, HLR, Transit MSC

Impedance level for incoming transmission direction of the PCM interface (W1 and W4)

Table 60.   The selection of impedance level for incoming transmission direction of the PCM interface (ET1E).

Selection criteria	Jumper	Note
The impedance level of incoming direction of transmission is 120 ohm balanced	W1:2-3 W4: -	Default setting
The impedance level of incoming direction of transmission is 75 ohm unbalanced	W1:1-2 W4:1-2	

Impedance level for outgoing transmission direction of the PCM interface (W6 and W9)

Table 61.   The selection of impedance level for outgoing transmission direction of the PCM interface (ET1E).

Selection criteria	Jumper	Note
The impedance level of outgoing direction of transmission is 120 ohm balanced	W6:1-2 W9: -	Default setting
The impedance level of outgoing direction of transmission is 75 ohm unbalanced	W6:2-3 W9:1-2	

CRC4/double frame mode (W12)

Table 62.   Selection of CRC4/double frame mode (ET1E).

Selection criteria	Jumper	Note
CRC4 mode is used, the use of E-bits is prevented	W12: -	
CRC4 mode is used, E-bits are in use	W12:3-4	Default setting *)
Double frame mode is used, bit 1 is not connected through ET	W12:1-6	*)

Table 62.   Selection of CRC4/double frame mode (ET1E). (cont.)

Selection criteria	Jumper	Note
Double frame mode is used, bit 1 is connected through ET	W12:1-6 3-4	

*) The mode must be the same as at the remote end. The CRC4 mode is recommended if it can be used at the remote end.

Grounding for the pair-specific protective wire of the PCM trunk circuit cable in the incoming transmission direction when a 120 ohm balanced PCM interface is used (W5)

Table 63.   Selection of the grounding, incoming direction, balanced trunk (ET1E).

Selection criteria	Jumper	Note
Pair-specific protective wire of the PCM trunk circuit cable in the incoming direction of transmission disconnected from ground of plug-in unit	W5: -	*)
Pair-specific protective wire of the PCM trunk circuit cable in the incoming direction of transmission connected to ground of plug-in unit	W5:1-2	*)

*) The selection is made on the basis of the document *DX 200 Grounding Principles of PCM Trunk Circuit Cables* .

Grounding for the cable sheath of the PCM trunk circuit in the incoming direction of transmission when a 75 ohm coaxial PCM interface is used (W5)

Table 64.   Selection of the grounding, incoming direction, coaxial trunk (ET1E).

Selection criteria	Jumper	Note
Cable sheath of the PCM trunk circuit in the incoming direction of transmission disconnected from ground of plug-in unit	W5: -	**) Default setting

Table 64.   Selection of the grounding, incoming direction, coaxial trunk (ET1E).
(cont.)

Selection criteria	Jumper	Note
Cable sheath of the PCM trunk circuit in the incoming direction of transmission connected to ground of pug-in unit	W5:1-2	**)

This table is also used when selecting the grounding mode for the pair cable (also known as virtual or pseudo coaxial cable) used as the unbalanced 75 ohm cable, where the a-conductor acts as the centre conductor, while the b-conductor and the pair-specific protective wire act as the sheath conductor.

**) The selection is made on the basis of the instructions describing the grounding principles of PCM trunk circuit cables in coaxial connections; see document *DX 200 Grounding Principles of PCM Trunk Circuit Cables* .

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16 ET1E C08517, versions 3 and higher

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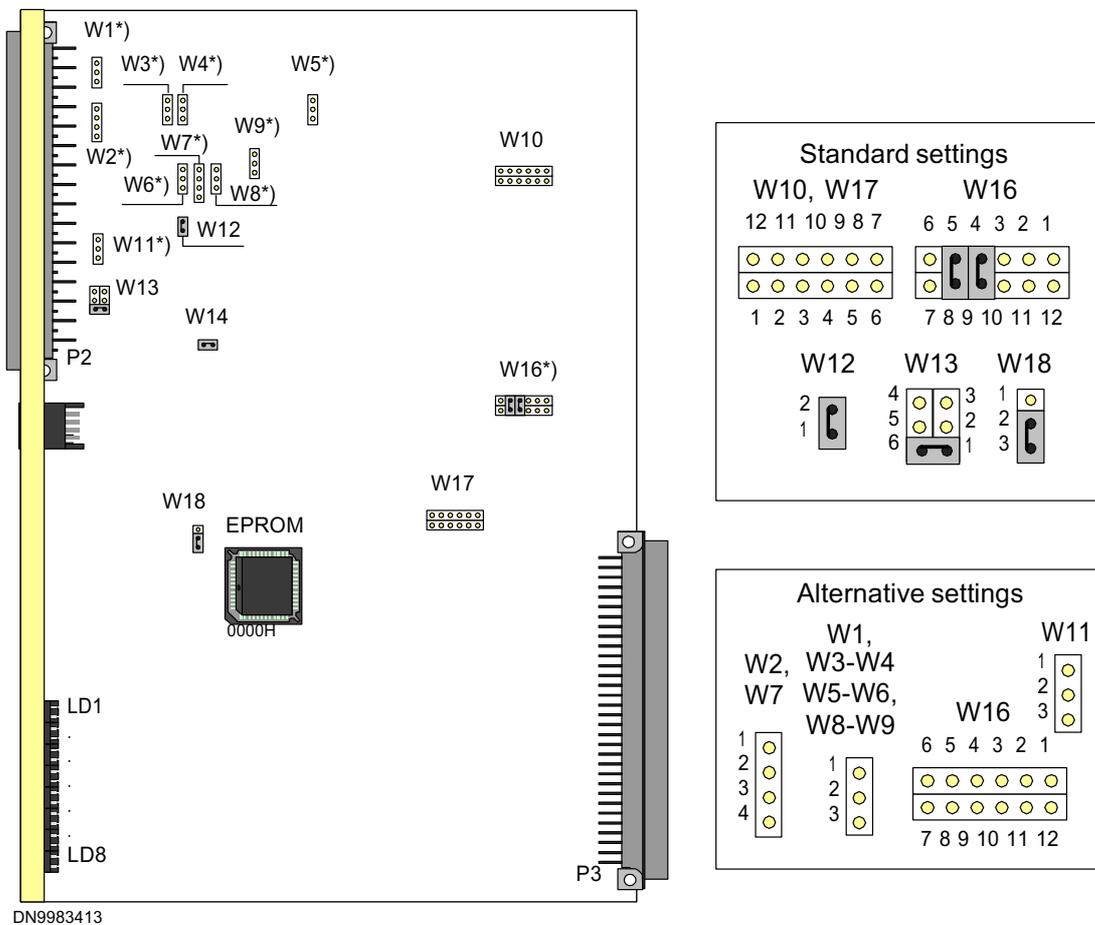
Figure 18.   Jumper pins, standard jumpers and read-only memory circuits in the ET1E plug-in unit, versions 3 and higher.

*) Alternative (optional) jumper settings are presented in the tables below. Jumper settings 4-9, 5-8 and 6-7 in jumper group W16 are standard.

Standard settings of ET1E, versions 3 and higher

Table 65.   Standard settings of ET1E, versions 3 and higher.

Jumper group	Jumper	Note
W10	-	
W12	1-2	The watchdog timer circuit is in use
W13	1-6	RAM is 64 kbytes
W14	1-2	
W16	4-9 5-8	Filtering time of the TCL interruption is 2 seconds. The even numbered T0's bit B1 = "1" in the transmitting direction.
W17	-	The odd numbered T0's bits 1, 4, 5, 6, 7, 8 = "1" in the transmitting direction.
W18	2-3	The capacity of the read/write memory is 32 or 128 kbytes

Alternative settings of ET1E, versions 3 and higher

Table 66.   Alternative settings of ET1E, versions 3 and higher.

Jumper group	Jumper	Selection criteria	Note
W1, W3, W4	W1:2-3 W3:2-3 W4:2-3	Impedance level is 120 ohm balanced	PCM interface's receiving direction; default setting
	W1:1-2 W3:1-2 W4:1-2	Impedance level is 75 ohm unbalanced	PCM interface's receiving direction
W5, W6, W8, W9	W5:2-3 W6:2-3 W8:2-3 W9:2-3	Impedance level is 120 ohm balanced	PCM interface's transmitting direction; default setting

Table 66.   Alternative settings of ET1E, versions 3 and higher. (cont.)

Jumper group	Jumper	Selection criteria	Note
	W5:1-2 W6:1-2 W8:1-2 W9:1-2	Impedance level is 75 ohm unbalanced	PCM interface's transmitting direction
W2 / alternative 1	3-4	The pair-specific protective wire of the PCM trunk circuit cable in the receiving direction is separated from the plug-in unit ground	Balanced 120 ohm PCM interface 1)
	2-3	The pair-specific protective wire of the PCM trunk circuit cable in the receiving direction is galvanically connected to the plug-in unit ground	
	1-2	The pair-specific protective wire of the PCM trunk circuit cable in the receiving direction is capacitively connected to the plug-in unit ground	
W2 / alternative 2	3-4	The sheath of the PCM trunk circuit cable in the receiving direction is separated from the plug-in unit ground	Unbalanced 75 ohm PCM interface; default setting 2)
	2-3	The sheath of the PCM trunk circuit cable in the receiving direction is galvanically connected to the plug-in unit ground	Unbalanced 75 ohm PCM interface 2)
	1-2	The sheath of the PCM trunk circuit cable in the receiving direction is capacitively connected to the plug-in unit ground	Unbalanced 75 ohm PCM interface 2)
W7 / alternative 1	3-4	The pair-specific protective wire of the PCM trunk circuit cable in the transmitting direction is separated from the plug-in unit ground	Balanced 120 ohm PCM interface 1)
	2-3	The pair-specific protective wire of the PCM trunk circuit cable in the transmitting direction is galvanically connected to the plug-in unit ground	
	1-2	The pair-specific protective wire of the PCM trunk circuit cable in the transmitting direction is capacitively connected to the plug-in unit ground	

Table 66.   Alternative settings of ET1E, versions 3 and higher. (cont.)

Jumper group	Jumper	Selection criteria	Note
W7 / alternative 2	3-4	The sheath of the PCM trunk circuit cable in the transmitting direction is separated from the plug-in unit ground	Unbalanced 75 ohm PCM interface 2)
	2-3	The sheath of the PCM trunk circuit cable in the transmitting direction is galvanically connected to the plug-in unit ground	
	1-2	The sheath of the PCM trunk circuit cable in the transmitting direction is capacitively connected to the plug-in unit ground	
W11	1–2	Frequency of the TCL is 8kHz	For cartridge mechanics, e.g. BSC, DX200
	2–3	Frequency of the TCL is 2.048 MHz	For subrack mechanics, e.g. MSC, HLR, Transit MSC
W16 pins 1, 3, 10 and 12	-	The CRC4 mode is used, use of the E bits is prevented	3)
	3-10	The CRC4 mode is used, E bits are used	Default setting; 3)
	1-12	Double frame mode is used, bit 1 is not connected through the ET	3)
	1-12 3-10	Double frame mode is used, bit 1 is connected through the ET	3)

1) The selection is made on the basis of the document *DX 200 Grounding Principles of PCM Trunk Circuit Cables.*

2) The selection is made on the basis of the document *DX 200 GroundingPrinciples of PCM Trunk Circuit Cables.* This part of the table is also used when selecting the grounding mode for the pair cable (also known as virtual, or pseudo, coaxial cable) used as the unbalanced 75 ohm cable, where the a-conductor acts as the centre conductor, while the b-conductor and the pair-specific protective wire act as the sheath conductor.

3) The mode must be the same as the mode at the remote end. The CRC4 mode is recommended if it is available at the remote end.

17 ET1E-C C08618, version 1
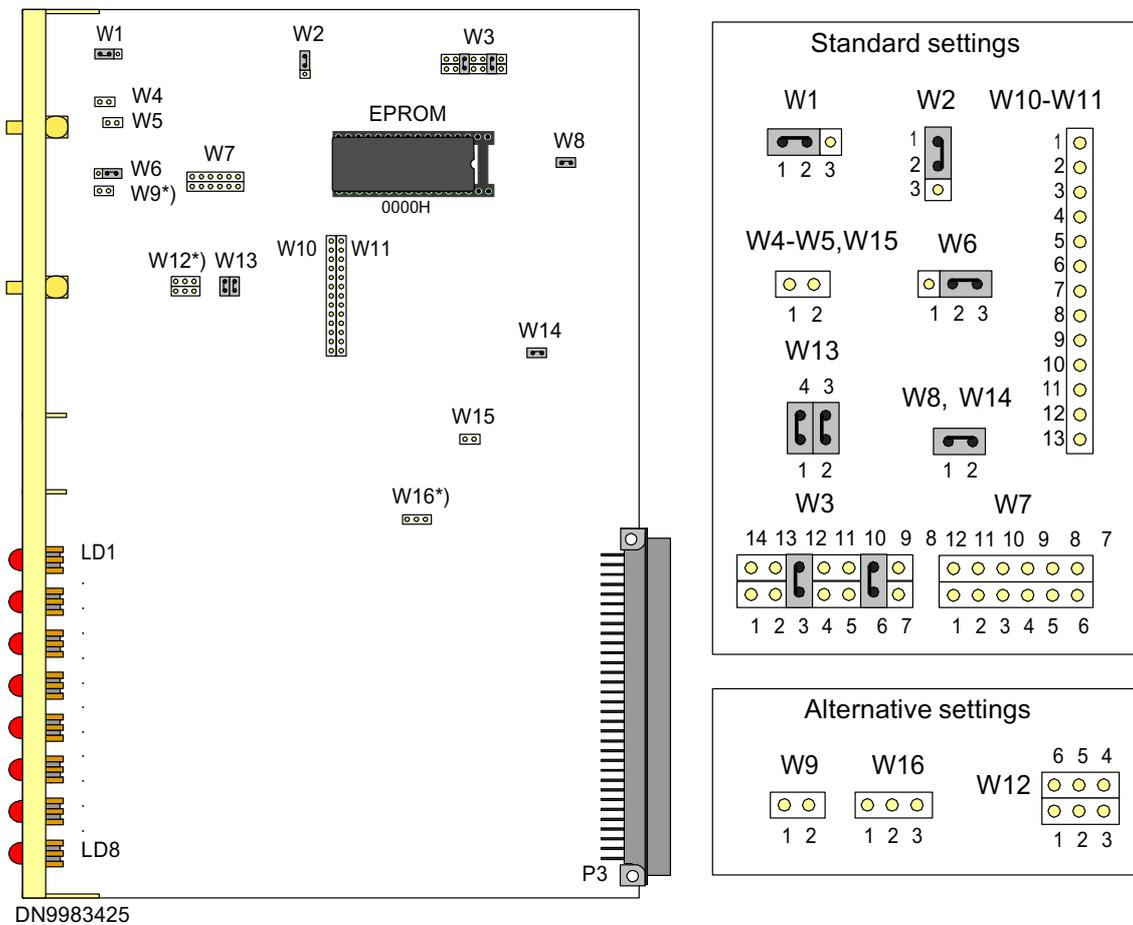
Figure 19.   Jumpers and EPROM circuits of plug-in unit ET1E-C.

*) Alternative settings are presented in the tables below.

Standard settings of ET1E-C

Table 67.   Standard settings of ET1E-C.

Jumper group	Jumper	Note
W1	1-2	Signal of incoming direction connected to test point TP1
W2	1-2	Read/write memory IC2; 32 kbytes x 8 or 128 kbytes x 8
W3	3-12 6-9	Read memory IC7; 32 kbytes x 8
W4	-	
W5	-	Sheath of the cable in incoming direction disconnected from ground of plug-in unit
W6	2-3	Signal of outgoing direction connected to test point TP3
W7	-	Bits 1, 4, 5, 6, 7, 8 of the odd T0 in outgoing direction of transmission = "1"
W8	1-2	
W10	-	
W11	-	
W13	1-4 2-3	Filtering time of TCL interruption is 2 sec
W14	1-2	
W15	-	Bit B1 = "1" of the even T0 in outgoing direction of transmission

TCL frequency setting (W16)

Table 68.   TCL frequency setting (W16)

Selection criteria	Jumper	Note
TCL frequency is 8kHz	W16:1–2	For cartridge mechanics, e.g. BSC, DX220

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Table 68.   TCL frequency setting (W16) (cont.)

Selection criteria	Jumper	Note
TCL frequency is 2.048 MHz	W16:2–3	For subrack mechanics, e.g. MSC, HLR, Transit MSC

CRC4/double frame mode (W12)

Table 69.   Selection of CRC4/double frame mode (ET1E-C).

Selection criteria	Jumper	Note
CRC4 mode is used, the use of E-bits is prevented	W12: -	
CRC4 mode is used, E-bits are in use	W12:3-4	Default setting *)
Double frame mode is used, bit 1 is not connected through ET	W12:1-6	*)
Double frame mode is used, bit 1 is connected through ET	W12:1-6 3-4	

*) The mode must be the same as at the remote end. The CRC4 mode is recommended if it can be used at the remote end.

Connection for the sheath of the cable in the outgoing transmission direction (W9)

Table 70.   Selection of the connection for the sheath of the cable in the outgoing transmission direction (ET1E-C).

Selection criteria	Jumper	Note
Sheath of the cable in outgoing direction disconnected from ground of plug-in unit	W9: -	**)
Sheath of the cable in outgoing direction connected to ground of plug-in unit	W9:1-2	**)

**) The selection is made on the basis of the instructions describing the grounding principles of PCM trunk circuit cables in coaxial connections; see the document *DX 200 Grounding Principles of PCM Trunk Circuit Cables* .

18 ET1E-C, versions 2 and higher
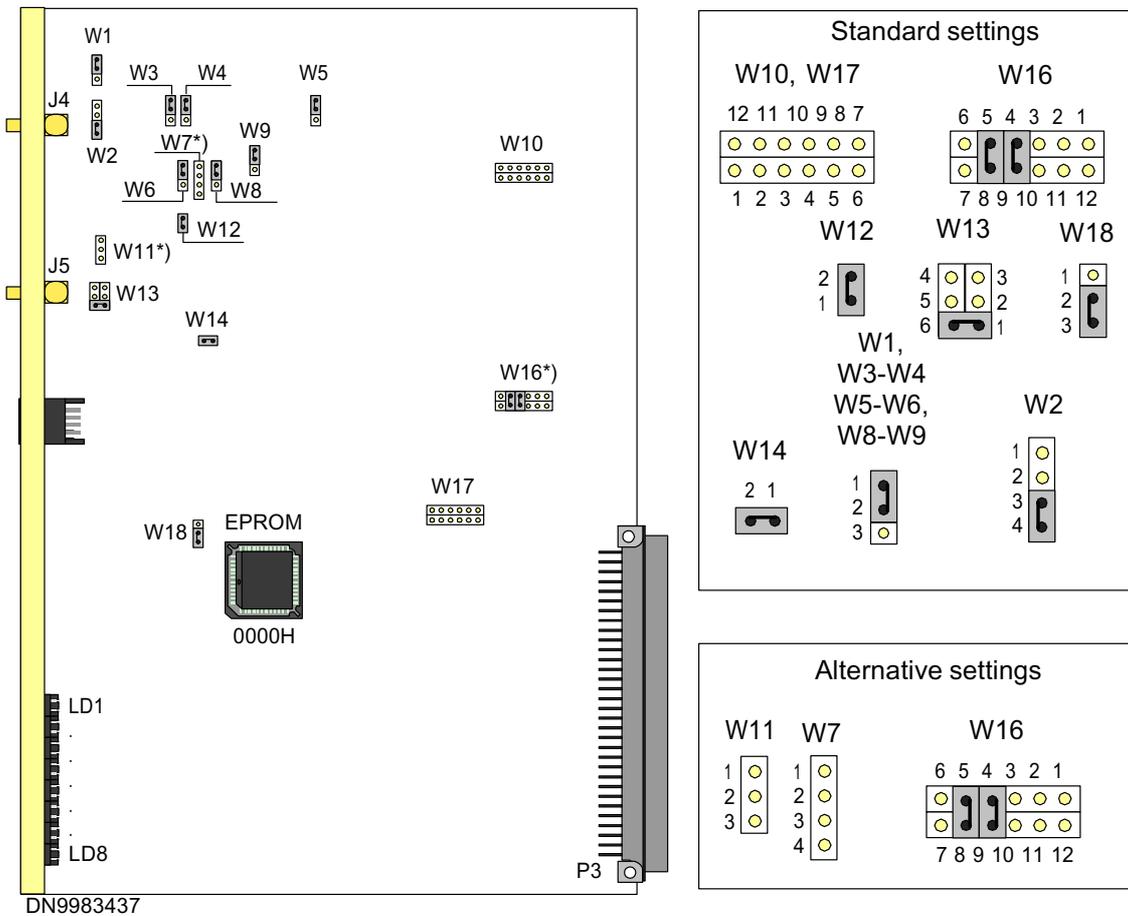
Figure 20.   Jumper pins, standard jumpers and read-only memory circuits in the ET1E-C, versions 2 and higher.

*) Optional jumpers are presented in the table below. Jumper settings 4-9, 5-8 and 6-7 in W16 are always the same.

Standard settings of ET1E-C, versions 2 and higher

Table 71.   Standard settings of ET1E-C, versions 2 and higher.

Jumper group	Jumper	Note
W1	1-2	In the receiving direction, the impedance level is 75 ohm unbalanced
W2	3-4	In the receiving direction, the sheath of the PCM trunk circuit cable is separated from ground
W3	1-2	See note for W1
W4	1-2	See note for W1
W5	1-2	In the transmitting direction, the impedance level is 75 ohm unbalanced
W6	1-2	See note for W5
W8	1-2	See note for W5
W9	1-2	See note for W5
W10	-	
W12	1-2	Watchdog circuit is in use
W13	1-6	Read-only memory is 64 kbytes
W14	1-2	
W16	4-9 5-8	Filtering time for the TCL interruption is 2 s. The even numbered T0's bit B1 = "1" in the transmitting direction.
W17	-	The odd numbered T0's bits 1, 4, 5, 6, 7, 8 = "1" in the transmitting direction.
W18	2-3	Read/write memory is 32 or 128 kbytes

Alternative settings of ET1E-C, versions 2 and higher

Table 72.   Alternative settings of ET1E-C, versions 2 and higher.

Jumper group	Jumper	Selection ciriteria	Note
W7	3-4	The sheath of the PCM trunk circuit cable in the transmitting direction is separated from the plug-in unit ground	1)
	2-3	The sheath of the PCM trunk circuit cable in the transmitting direction is galvanically connected to the plug-in unit ground	
	1-2	The sheath of the PCM trunk circuit cable in the transmitting direction is capacitively connected to the plug-in unit ground	
W11	1–2	TCL frequency is 8kHz	For cartridge mechanics, e.g. BSC, DX220
	2–3	TCL frequency is 2.048 MHz	For subrack mechanics, e.g. MSC, HLR, Transit MSC
W16 pins 1,3,10 and 12	-	The CRC4 mode is used, use of E bits is prevented	2)
	3-10	The CRC4 mode is used, E-bits are also in use	Default setting in the CRC4 mode 2)
	1-12	The double frame mode is used, bit 1 is not connected through the ET	2)
	1-12 3-10	The double frame mode is used, bit 1 is connected through the ET	2)

1) The selection is made on the basis of the document *DX 200 Grounding Principles of PCM Trunk Circuit Cables* .

2) The mode has to be the same as at the remote end. The CRC4 mode is recommended if it is possible at the remote end.

19 ET2A C08781
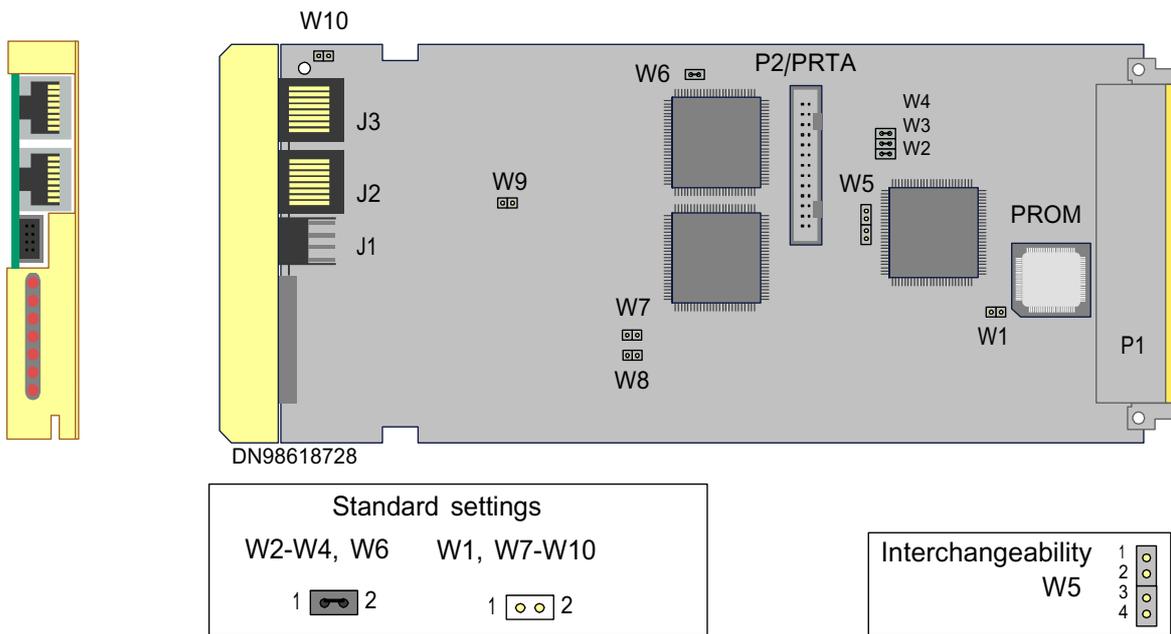
Figure 21.   Jumper groups and EPROM circuits of plug-in unit ET2A

Standard settings are presented in the table below, and the jumpers W1 through W10 must be set as shown in normal operation.

There are no alternative settings available on the plug-in unit.

Jumper group W5 is used for setting the interchangeability code of the plug-in unit when required, see the table below.

Standard settings (W1-W4, W6-W10)

Table 73.   Standard settings of ET2A (W1-W4, W6-W10)

Jumper	Setting	Meaning
W1;1 - 2	OFF	Clock oscillator of processor connected (for testing)
W2;1 - 2	ON	Jumper readable by program; not in use
W3;1 - 2	ON	Clock oscillator for processor connected (for testing)
W4;1 - 2	ON	Processor RESET signal connected (for testing)
W6;1 - 2	ON	6.176 MHz signal connected to interface circuit
W7;1 - 2	OFF	-5 V (pin 2) and ground (pin 1) for testing
W8;1 - 2	OFF	+5 V (pin 1) and ground (pin 2) for testing
W9;1 - 2	OFF	Ground potential for testing
W10;1 - 2	OFF	Overvoltage ground of T1 interface separated from digital ground

Interchangeability code settings (W5)

The currently valid interchangeability code is set at the factory.

Table 74.   Interchangeability code settings of ET2A (W5)

ICC code	W5 setting	
	1 - 2	3 - 4
A, E, J or N	ON	ON
B, F, K or P	OFF	ON
C, G, L or R	ON	OFF
D, H, M or S	OFF	OFF

20 ET2A-T C105509, ECE2-A C105512
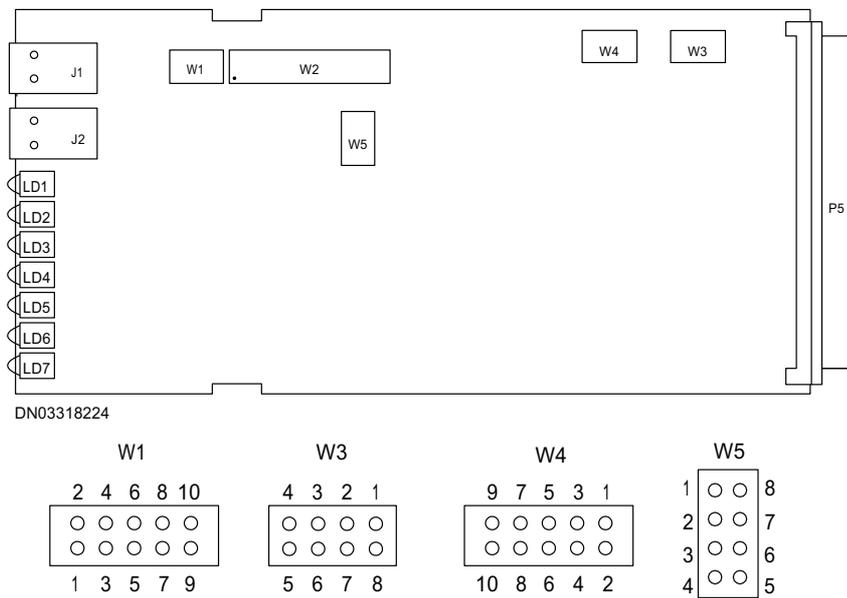
Figure 22.   Jumpers of ET2A-T and ECE2-A

Note

W2 is a PRTA connector.

W4

The following tables present user changeable settings. By default, all the strappings are unset.

Note

How setting W4: 9-10 functions, depends on the Interchangeability code (A or B) of the plug-in unit.

Table 75.   Strappings of ET2A-T and ECE2-A (W4).

Connection	Setting	Meaning	Note
W4	1-2	Zero Suppression mode Set: Zero Suppression enabled Unset: Zero Suppression disabled	
	3-4	T1/JT1 mode Set: JT1 Unset: T1	
	5-6	Used only in E1 variants.	
	7-8	Echo cancellation mode Set: ISC Unset: MSC	
	9-10	Flash boot sector protection A: Set: Unprotected Unset: Protected B: Set: Protected Unset: Unprotected	A = Interchangeability code A B = Interchangeability code B

W3, Interchangeability code settings

Table 76.   Interchangeability (ICC) code settings (W3).

ICC code	Setting			
	W3: 4-5 (MSB)	W3: 3-6	W3: 2-7	W3: 1-8 (LSB)
A	OFF	OFF	OFF	OFF
B	OFF	OFF	OFF	ON
C	OFF	OFF	ON	OFF
D	OFF	OFF	ON	ON
E	OFF	ON	OFF	OFF
F	OFF	ON	OFF	ON
G	OFF	ON	ON	OFF
H	OFF	ON	ON	ON
J	ON	OFF	OFF	OFF
K	ON	OFF	OFF	ON
L	ON	OFF	ON	OFF
M	ON	OFF	ON	ON
N	ON	ON	OFF	OFF
P	ON	ON	OFF	ON
R	ON	ON	ON	OFF

W1, W2 and W5

The FPGA, FALC56 and daughter board include a JTAG interface (W1), which is connected to a 2x5-pin strip.

W2 is a PRTA interface (for test adapter).

W5 is used for watchdog settings, see the table below.

Table 77.   Watchdog settings (W5).

Connection	Setting	Setting
W5	1-8	Spare
	2-7	Spare
	3-6	Spare
	4-5	Watchdog set: disabled Watchdog unset: enabled (default)

Spare strappings can be removed and used in other locations, if need be.

21 ET2E C08709
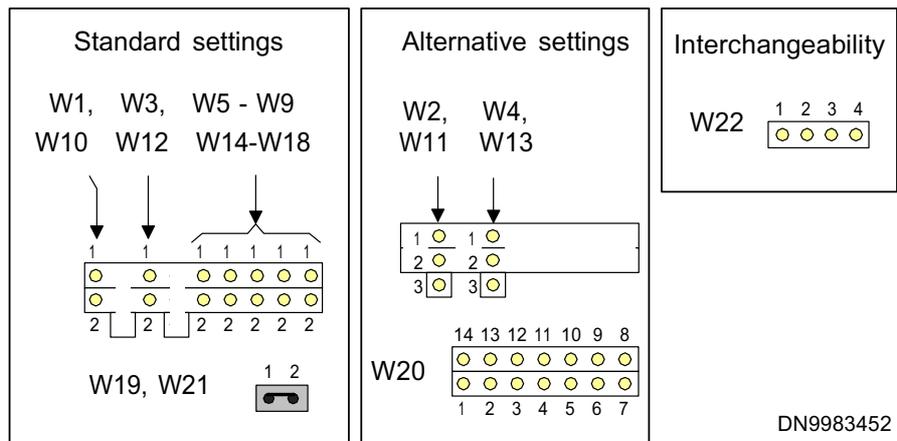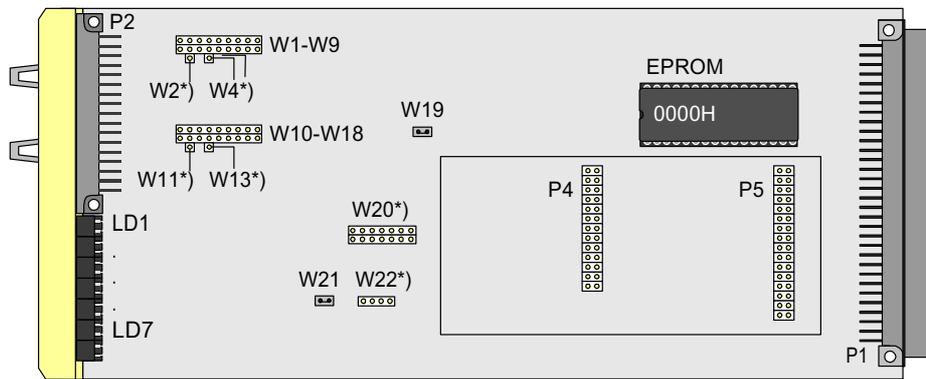
Figure 23.   Jumper groups and EPROM circuit of plug-in unit ET2E.

- *) Alternative settings are presented in the tables below. A daughter board ET2DV (C 23200), implementing the V.11 interface of the ET2E and the through-connection of Sa bits, can be equipped to connectors P4 and P5 located on the plug-in unit.

Standard settings

Table 78.   Standard settings.

Jumper group	Jumper	Note
W1	-	The interface of outgoing direction of circuit 0 is balanced
W3	-	The interface of incoming direction of circuit 0 is balanced
W5	-	The impedance of the interface of incoming direction of circuit 0 is 120 ohm
W6	-	See note on W5
W7	-	See note on W5
W8	-	The impedance of the interface of outgoing direction of circuit 0 is 120 ohm
W9	-	See note on W8
W10	-	The interface of outgoing direction of circuit 1 is balanced
W12	-	The interface of incoming direction of circuit 1 is balanced
W14	-	The impedance of the interface of incoming direction of circuit 1 is 120 ohm
W15	-	See note on W14
W16	-	See note on W14
W17	-	The impedance of the interface of outgoing direction of circuit 1 is 120 ohm
W18	-	See note on W17
W19	1-2	
W21	1-2	

Grounding of the cable sheath for outgoing direction of circuit 0 (W2)

- The selection is made on the basis of the document *DX 200 GroundingPrinciples of PCM Trunk Circuit Cables* .

Table 79.   Selection of the grounding of the cable sheath for outgoing direction of circuit 0.

Selection criteria	Jumper	Note
Cable sheath of outgoing direction of circuit 0 not connected	W2: -	
Cable sheath of outgoing direction of circuit 0 connected galvanically to ground of plug-in unit	W2: 2-3	Default setting
Cable sheath of outgoing direction of circuit 0 connected capacitively to ground of plug-in unit	W2: 1-2	

Grounding of the cable sheath for incoming direction of circuit 0 (W4)

·   The selection is made on the basis of the document *DX 200 GroundingPrinciples of PCM Trunk Circuit Cables* .

Table 80.   Selection of the grounding of the cable sheath for incoming direction of circuit 0.

Selection criteria	Jumper	Note
Cable sheath of incoming direction of circuit 0 not connected	W4: -	Default setting
Cable sheath of incoming direction of circuit 0 connected galvanically to ground of plug-in unit	W4: 2-3	
Cable sheath of incoming direction of circuit 0 connected capacitively to ground of plug-in unit	W4: 1-2	

Grounding of the cable sheath for outgoing direction of circuit 1 (W11)

·   The selection is made on the basis of the document *DX 200 Grounding Principles of PCM Trunk Circuit Cables* .

Table 81.   Selection of the grounding of the cable sheath for outgoing direction of circuit 1.

Selection criteria	Jumper	Note
Cable sheath of outgoing direction of circuit 1 not connected	W11: -	
Cable sheath of outgoing direction of circuit 1 connected galvanically to ground of plug-in unit	W11: 2-3	Default setting
Cable sheath of outgoing direction of circuit 1 connected capacitively to ground of plug-in unit	W11: 1-2	

Grounding of the cable sheath of incoming direction of circuit 1 (W13)

- The selection is made on *DX 200 Grounding Principles of PCM Trunk Circuit Cables* .

Table 82.   Selection of the grounding of the cable sheath of incoming direction of circuit 1.

Selection criteria	Jumper	Note
Cable sheath of incoming direction of circuit 1 not connected	W13: -	Default setting
Cable sheath of incoming direction of circuit 1 connected galvanically to ground of plug-in unit	W13: 2-3	
Cable sheath of incoming direction of circuit 1 connected capacitively to ground of plug-in unit	W13: 1-2	

CRC4/double frame mode of circuit 0 (W20, pins 1 and 14)

- The settings of jumper group W20 do not directly affect the hardware, and it can be passed by the program.

Table 83.   Selection of the CRC4/double frame mode of circuit 0.

Selection criteria	Jumper	Note
Double frame mode in use on circuit 0	W20: 1-14 jumper in	
CRC4 mode in use on circuit 0	W20: 1-14 jumper out	Default setting

CRC4/double frame mode of circuit 1 (W20, pins 2 and 13)

•   The settings of jumper group W20 do not directly affect the hardware, and it can be passed by the program.

Table 84.   Selection of the CRC4/double frame mode of circuit 1.

Selection criteria	Jumper	Note
Double frame mode in use on circuit 1	W20: 2-13 jumper in	
CRC4 mode in use on circuit 1	W20: 2-13 jumper out	Default setting

Use of bits 5, 6, 7 and 8 of T0 used in V.11 mode (W20, pins 3 and 12)

•   The settings of jumper group W20 do not directly affect the hardware, and it can be passed by the program.

Table 85.   Selection of the use of bits 5, 6, 7 and 8 of T0 used in V.11 mode.

Selection criteria	Jumper	Note
Bits 5 and 6 of the odd T0 in use in V.11 mode	W20: 3-12 jumper in	Default setting
Bits 5,6,7 and 8 of the odd T0 in use in V.11 mode	W20: 3-12 jumper out	

Function mode of ET2E (W20, pins 4, 5, 10 and 11)

- The settings of jumper group W20 do not directly affect the hardware, and it can be passed by the program.

Table 86.   Selection of the function mode of ET2E.

Selection criteria	Jumper	Note
ET2E in transparent mode	W20: 4-11 jumper out 5-10 jumper out	
ET2E in through-connection mode of Sa bits	W20: 4-11 jumper in 5-10 jumper out	
ET2E in normal mode	W20: 4-11 jumper out 5-10 jumper in	Default setting
ET2E in V.11 mode	W20: 4-11 jumper in 5-10 jumper in	

Location of maintenance (W20, pins 6 and 9)

- The settings of jumper group W20 do not directly affect the hardware, and it can be passed by the program.

Table 87.   Selection of the location of maintenance.

Selection criteria	Jumper	Note
A separate PCM circuit of maintenance in use	W20: 6-9 jumper in	
Maintenance channel travels in time slot T0 of even circuit	W20: 6-9 jumper out	Default setting. It can be passed by a jumper of cartridge (signal _SPRP)

Usage of bit 4 of the odd T0 time slot (W20, pins 7 and 8)

- The settings of jumper group W20 do not directly affect the hardware, and it can be passed by the program.

Table 88.   Selection of usage of bit 4 of the odd T0 time slot.

Selection criteria	Jumper	Note
Bit 4 of the odd T0 time slot is set into state 0 from 10e-6 error ratio alarm	W20: 7-8 jumper in	The state of the B4 of the incoming direction is also controlled and 10e-6 alarm given to the remote end when value of B4 moves into state 0
Bit 4 of the odd T0 time slot always in state 1 in outgoing direction	W20: 7-8 jumper out	*Default setting:* 10e-6 alarm of remote end not controlled (alarm of near end always controlled)

Interchangeability code (W22)

Table 89.   Selection of the interchangeability code.

Jum-per	Interchangeability code														
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S
W22: 1-2	X		X		X		X		X		X		X		X	
W22: 3-4	X	X			X	X			X	X			X	X		

In the table, X = the corresponding connection is made, and blank = the corresponding connection is not made

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Note

Letters I, O, and Q may not be used as interchangeability codes.

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22 ET2E-C C08763
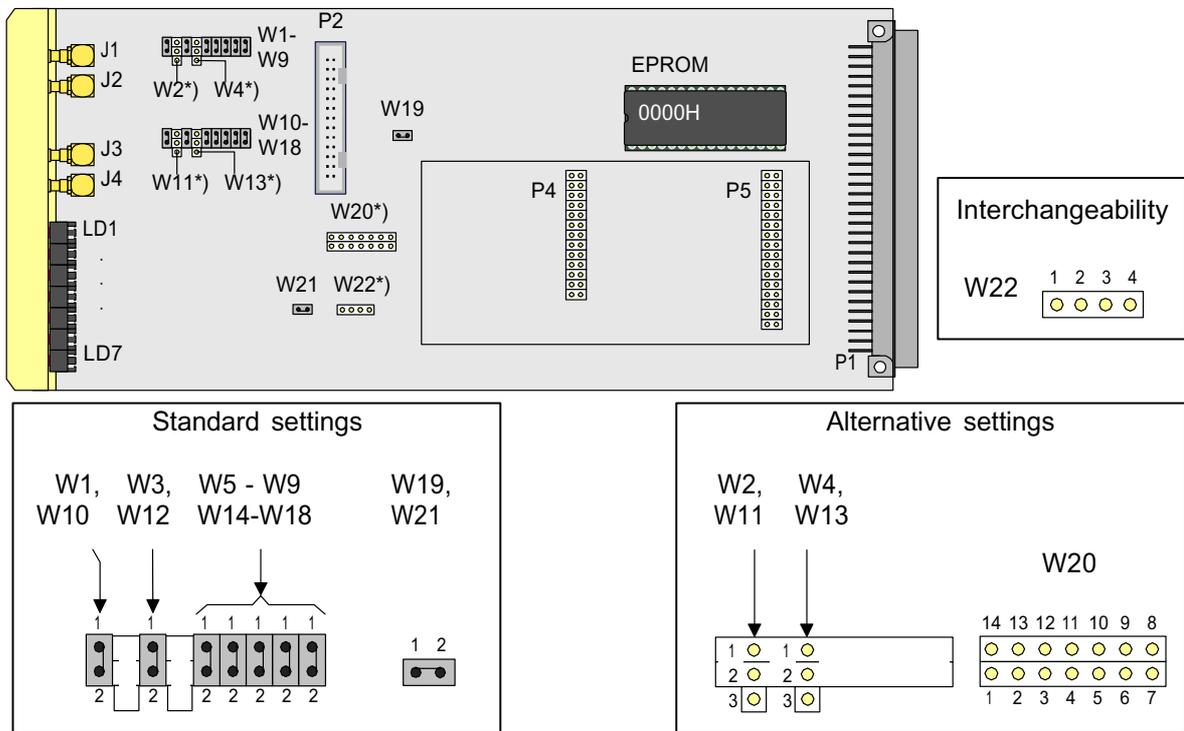
DN9983464

Figure 24.   Jumpers and EPROM circuits of plug-in unit ET2E-C, version 1.

*) Alternative settings are presented in the tables below.

- a daughter board ET2DV (C 23200), implementing the V.11 interface of the ET2E-C and the through-connection of Sa bits, can be equipped to connectors P4 and P5 located on the plug-in unit.

Standard settings

Table 90.   Standard settings.

Jumper group	Jumper	Note
W1	1-2	The interface of outgoing direction of circuit 0 is unbalanced
W3	1-2	The interface of incoming direction of circuit 0 is unbalanced
W5	1-2	The impedance of the interface of incoming direction of circuit 0 is 75 ohm
W6	1-2	See note on W5
W7	1-2	See note on W5
W8	1-2	The impedance of the interface of outgoing direction of circuit 0 is 75 ohm
W9	1-2	See note on W8
W10	1-2	The interface of outgoing direction of circuit 1 is unbalanced
W12	1-2	The interface of incoming direction of circuit 1 is unbalanced
W14	1-2	The impedance of the interface of incoming direction of circuit 1 is 75 ohm
W15	1-2	See note on W14
W16	1-2	See note on W14
W17	1-2	The impedance of the interface of outgoing direction of circuit 1 is 75 ohm
W18	1-2	See note on W17
W19	1-2	
W21	1-2	

Grounding of the cable sheath for outgoing direction of circuit 0 (W2)

- The selection is made on the basis of the instructions describing the grounding principles of PCM trunk circuit cables in coaxial connections; see document *DX 200 Grounding Principles of PCM Trunk Circuit Cables*.

Table 91.   Selection of the grounding of the cable sheath for outgoing direction of circuit 0.

Selection criteria	Jumper	Note
Cable sheath of outgoing direction of circuit 0 not connected	W2: -	Default setting
Cable sheath of outgoing direction of circuit 0 connected galvanically to ground of plug-in unit	W2: 2-3	
Cable sheath of outgoing direction of circuit 0 connected capacitively to ground of plug-in unit	W2: 1-2	

Grounding of the cable sheath for incoming direction of circuit 0 (W4)

- The selection is made on the basis of the instructions describing the grounding principles of PCM trunk circuit cables in coaxial connections; see document *DX 200 Grounding Principles of PCM Trunk Circuit Cables*.

Table 92.   Selection of the grounding of the cable sheath for incoming direction of circuit 0.

Selection criteria	Jumper	Note
Cable sheath of incoming direction of circuit 0 not connected	W4: -	Default setting
Cable sheath of incoming direction of circuit 0 connected galvanically to ground of plug-in unit	W4: 2-3	
Cable sheath of incoming direction of circuit 0 connected capacitively to ground of plug-in unit	W4: 1-2	

Grounding of the cable sheath for outgoing direction of circuit 1 jumper group W11)

- The selection is made on the basis of the instructions describing the grounding principles of PCM trunk circuit cables in coaxial connections; see document *DX 200 Grounding Principles of PCM Trunk Circuit Cables*.

Table 93.   Selection of the grounding of the cable sheath for outgoing direction of circuit 1.

Selection criteria	Jumper	Note
Cable sheath of outgoing direction of circuit 1 not connected	W11: -	Default setting
Cable sheath of outgoing direction of circuit 1 connected galvanically to ground of plug-in unit	W11: 2-3	
Cable sheath of outgoing direction of circuit 1 connected capacitively to ground of plug-in unit	W11: 1-2	

Grounding of the cable sheath for incoming direction of circuit 1 (W13)

- The selection is made on the basis of the instructions describing the grounding principles of PCM trunk circuit cables in coaxial connections; see document *DX 200 Grounding Principles of PCM Trunk Circuit Cables*.

Table 94.   Selection of the grounding of the cable sheath for incoming direction of circuit 1.

Selection criteria	Jumper	Note
Cable sheath of incoming direction of circuit 1 not connected	W13: -	Default setting
Cable sheath of incoming direction of circuit 1 connected galvanically to ground of plug-in unit	W13: 2-3	
Cable sheath of incoming direction of circuit 1 connected capacitively to ground of plug-in unit	W13: 1-2	

CRC4/double frame mode of circuit 0 (W20, pins 1 and 14)

- The settings of jumper group W20 do not directly affect the hardware, and it can be passed by the program.

Table 95.   Selection of the CRC4/double frame mode of circuit.

Selection criteria	Jumper	Note
Double frame mode in use on circuit 0	W20: 1-14 jumper in	
CRC4 mode in use on circuit 0	W20: 1-14 jumper out	Default setting

CRC4/double frame mode of circuit 1 (W20, pins 2 and 13)

- The settings of jumper group W20 do not directly affect the hardware, and it can be passed by the program.

Table 96.   Selection of the CRC4/double frame mode of circuit 1.

Selection criteria	Jumper	Note
Double frame mode in use on circuit 1	W20: 2-13 jumper in	
CRC4 mode in use on circuit 1	W20: 2-13 jumper out	Default setting

Use of bits 5, 6, 7 and 8 of T0 used in V.11 mode (W20, pins 3 and 12)

- The settings of jumper group W20 do not directly affect the hardware, and it can be passed by the program.

Table 97.   Selection of the use of bits 5, 6, 7 and 8 of T0 used in V.11 mode.

Selection criteria	Jumper	Note
Bits 5 and 6 of the odd T0 in use in V.11 mode	W20: 3-12 jumper in	Default setting
Bits 5, 6, 7 and 8 of the odd T0 in use in V.11 mode	W20: 3-12 jumper out	

Function mode of ET2E-C (W20, pins 4, 5, 10 and 11)

- The settings of jumper group W20 do not directly affect the hardware, and it can be passed by the program.

Table 98.   Selection of the function mode of ET2E-C.

Selection criteria	Jumper	Note
ET2E-C in transparent mode	W20:4-11 jumper out 5-10 jumper out	
ET2E-C in through-connection mode of Sa bits	W20: 4-11 jumper in 5-10 jumper out	
ET2E-C in normal mode	W20: 4-11 jumper out 5-10 jumper in	Default setting
ET2E-C in V.11 mode	W20: 4-11 jumper in 5-10 jumper in	

Location of maintenance (W20, pins 6 and 9)

- The settings of jumper group W20 do not directly affect the hardware, and they can be passed by the program.

Table 99.   Selection of the location of maintenance.

Selection criteria	Jumper	Note
A separate PCM circuit of maintenance in use	W20: 6-9 jumper in	
Maintenance channel travels in time slot T0 of even circuit	W20: 6-9 jumper out	Default setting. It can be passed by a jumper of cartridge (signal _SPRP)

Usage of bit 4 of the odd T0 time slot (W20, pins 7 and 8)

- The settings of jumper group W20 do not directly affect the hardware, and it can be passed by the program.

Table 100.   Selection of usage of bit 4 of the odd T0 time slot.

Selection criteria	Jumper	Note
Bit 4 of the odd T0 time slot is set into state 0 from 10e-6 error ratio alarm	W20: 7-8 jumper in	The state of the B4 of the incoming direction is also controlled and 10e-6 alarm given to the remote end when value of B4 moves into state 0
Bit 4 of the odd T0 time slot always in state 1 in outgoing direction	W20: 7-8 jumper out	*Default setting:* 10e-6 alarm of remote end not controlled (alarm of near end always controlled)

Interchangeability code (W22)

Table 101.   Selection of the interchangeability code.

| Jumper	Interchangeability code															
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S
W22: 1-2	X		X		X		X		X		X		X		X	
W22: 3-4	X	X			X	X			X	X			X	X		

In the table, X = the corresponding connection is made, and blank = the corresponding connection is not made

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Note

Letters I, O, and Q may not be used as interchangeability codes.

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Figure 25.   Jumpers and EPROM circuits of plug-in unit ET2E-S

Standard settings are presented in the table below, and the jumpers W2, W4, W11, W13, W19, W21, W23, and W24 must be set as shown during normal operation.

Optional settings for grounding the cable sheaths (W2, W4, W11, and W13) are available for some applications if required.

Alternative settings are presented in the table below, and the setting of jumpers on W28 depends on the application. All the setting alternatives are presented.

Jumper group W22 is used for setting the interchangeability code of the plug-in unit when required, see the table below.

A daughter board ET2DV (C 23200), implementing the V.11 interface of the ET2E and the through-connection of Sa bits, can be equipped to connectors P4 and P5 located on the plug-in unit.

Standard settings

The standard jumper settings for ET2E-S are described in the table below.

Table 102.   Standard settings of ET2E-S

Jumper	Setting	Meaning
W2;1 - 2	OFF	The plug-in unit ground is not connected with ET interface cables in the incoming or the outgoing transmission direction.
W2;2 - 3	OFF	
W4;1 - 2	OFF	These are default settings, but in some applications these can be changed if required; See *Optional grounding settings* below.
W4;2 - 3	OFF	
W11;1 - 2	OFF	
W11;2 - 3	OFF	
W13;1 - 2	OFF	
W13;2 - 3	OFF	
W19;1 - 2	ON	20 MHz clock connected to CPU
W21;1 - 2	ON	Watchdog reset enabled
W23;2 - 3	ON	256 kbyte of RAM memory selected for code area
W24;1 - 2	ON	Timer 0 / 1.25 MHz clock

Alternative settings

Table 103.   Alternative settings of ET2E-S

Meaning	Jumper	Setting
Selection of line code		

NOKIA

Table 103. Alternative settings of ET2E-S (cont.)

Meaning	Jumper	Setting
Double frame mode on circuit 0	W28;1 - 16	ON
CRC4 mode on circuit 0 (Default setting)	W28;1 - 16	OFF
Double frame mode on circuit 1	W28;2 - 15	ON
CRC4 mode on circuit 1(Default setting)	W28;2 - 15	OFF
Selection of function mode (program can bypass the settings concerned)		
ET2E in transparent mode	W28;4 - 13	OFF
	W28;5 - 12	OFF
ET2E in through-connection mode of Sa bits	W28;4 - 13	ON
	W28;5 - 12	OFF
ET2E in normal mose (Default setting)	W28;4 - 13	OFF
	W28;5 - 12	ON
ET2E in V.11 mode	W28;4 - 13	ON
	W28;5 - 12	ON
Bits 5 and 6 of the odd T0 in use (Default setting)	W28;3 - 14	ON
Bits 5, 6, 7 and 8 of the odd T0 in use	W28;3 - 14	OFF
Supervision of the far-end error ratio (10e-6); T0/B4-bit		
An alarm is sent to the far end	W28;7 - 10	ON
No alarm is sent to the far end (Default setting)	W28;7 - 10	OFF
Transmission redundancy		
Transmission redundancy in use	W28;8 - 9	ON
Transmission redundancy not in use (Default setting)	W28;8 - 9	OFF

Optional grounding settings

Table 104.   Optional settings for grounding the cable sheaths of ET2E-S
(W2, W4, W11 and W13)

Jumper group	Setting	Selection criteria	Notes
W2;ALL	OFF	The cable sheath of the PCM trunk circuit 0 in the outgoing direction is separated from the plug-in unit ground.	Default 1)
W2;2 - 3	ON	The cable sheath of the PCM trunk circuit 0 in the outgoing direction is galvanically connected to the plug-in unit ground.	1)
W2;1 - 2	ON	The cable sheath of the PCM trunk circuit 0 in the outgoing direction is capacitively connected to the plug-in unit ground.	1)
W4; ALL	OFF	The cable sheath of the PCM trunk circuit 0 in the incoming direction is separated from the plug-in unit ground.	Default 1)
W4;2 - 3	ON	The cable sheath of the PCM trunk circuit 0 in the incoming direction is galvanically connected to the plug-in unit ground.	1)
W4;1 - 2	ON	The cable sheath of the PCM trunk circuit 0 in the incoming direction is capacitively connected to the plug-in unit ground.	1)
W11;ALL	OFF	The cable sheath of the PCM trunk circuit 1 in the outgoing direction is separated from the plug-in unit ground.	Default 1)
W11;2 - 3	ON	The cable sheath of the PCM trunk circuit 1 in the outgoing direction is galvanically connected to the plug-in unit ground.	1)
W11;1 - 2	ON	The cable sheath of the PCM trunk circuit 1 in the outgoing direction is capacitively connected to the plug-in unit ground.	1)
W13;ALL	OFF	The cable sheath of the PCM trunk circuit 1 in the incoming direction is separated from the plug-in unit ground.	Default 1)
W13;2 - 3	ON	The cable sheath of the PCM trunk circuit 1 in the incoming direction is galvanically connected to the plug-in unit ground.	1)

Table 104.   Optional settings for grounding the cable sheaths of ET2E-S (W2, W4, W11 and W13) (cont.)

Jumper group	Setting	Selection criteria	Notes
W13;1 - 2	ON	The cable sheath of the PCM trunk circuit 1 in the incoming direction is capacitively connected to the plug-in unit ground.	1)

1) The default settings that are factory settings (no jumpers set) are normally applicable (M92 and M98 mechanics) as shown in *Standard settings* above. In the i-series network elements (M98) these settings have no meaning. In arrangements where PCM trunk cables are brought to the front panels of ET units (for example BSC, BSC2, BSC3i, and TCSM2 applications) these settings can be changed if required. More information on grounding alternatives is available in the document: *Grounding of External Interface Cables* .

Interchangeability code settings

Table 105.   Interchangeability code settings of ET2E-S (W22)

ICC code	W22 setting	
	1 - 2	3 - 4
A, E, J or N	ON	ON
B, F, K or P	OFF	ON
C, G, L or R	ON	OFF
D, H, M or S	OFF	OFF

24 ET2E-SC C08902
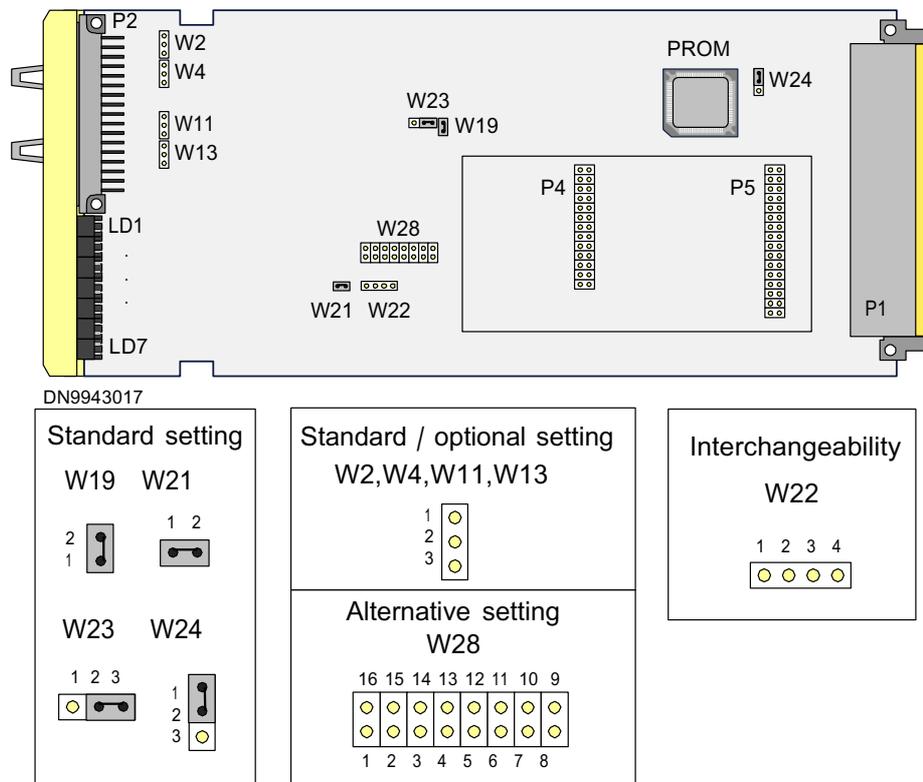

DN98618634
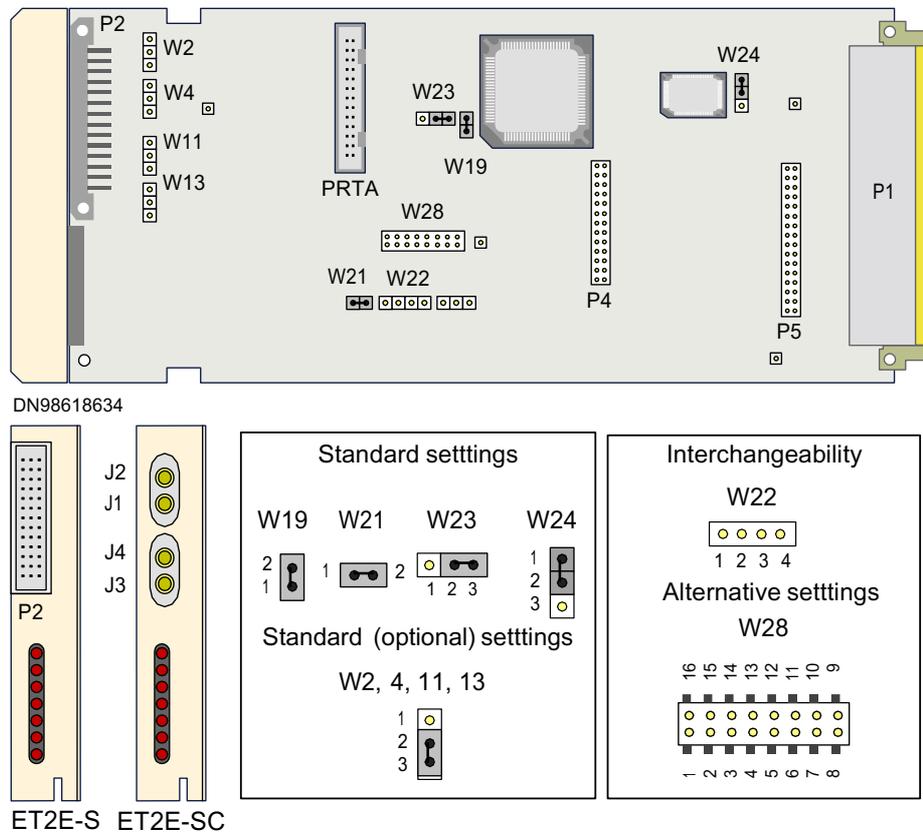
Figure 26.   Jumpers and EPROM circuits of plug-in unit ET2E-SC

Standard settings are presented in the table below, and the jumpers W2, W4, W11, W13, W19, W21, W23, and W24 must be set as shown in normal operation.

Alternative settings are presented in the table below, and the setting of jumpers on W28 depends on the application. All the setting alternatives are presented.

Jumper group W22 is used for setting the interchangeability code of the plug-in unit when required, see the table below.

A daughter board ET2DV (C 23200), implementing the V.11 interface of the ET2E and the through-connection of Sa bits, can be equipped to connectors P4 and P5 located on the plug-in unit.

Standard settings (W2, W3, W11, W12, W19, W21, W23, W24)

Table 106.   Standard settings of ET2E-SC (W2, W3, W11, W12, W19, W21, W23, W24)

Jumper	Setting	Meaning
W2;2 - 3 W4;2 - 3 W11;2 - 3 W13;2 - 3	ON ON ON ON	The plug-in unit ground is connected galvanically to the cable sheath of the external interface cables in incoming and outgoing direction 1)
W19;1 - 2	ON	20 MHz clock connected to CPU
W21;1 - 2	ON	Watchdog reset enabled
W23;2 - 3	ON	256 kbyte of RAM memory selected for code area
W24;1 - 2	ON	Timer 0 / 1.25 MHz clock

1) In the M92 and M98 network elements these are default settings, but in some applications they can be changed if required; see *Optional grounding settings* below.

Alternative settings (W28)

Table 107.   Alternative settings of ET2E-SC (W28)

Meaning	Jumper	Setting
Selection of line code:		
Double frame mode on circuit 0	W28;1 - 16	ON
CRC4 mode on circuit 0 (Default setting)	W28;1 - 16	OFF

NOKIA

Table 107.   Alternative settings of ET2E-SC (W28) (cont.)

Meaning	Jumper	Setting
Double frame mode on circuit 1	W28;2 - 15	ON
CRC4 mode on circuit 1 (Default setting)	W28;2 - 15	OFF
Selection of function mode (program can bypass the settings concerned):		
ET2E in transparent mode	W28;4 - 13 W28;5 - 12	OFF OFF
ET2E in through-connection mode of Sa bits	W28;4 - 13 W28;5 - 12	ON OFF
ET2E in normal mode (Default setting)	W28;4 - 13 W28;5 - 12	OFF ON
ET2E in V.11 mode:	W28;4 - 13 W28;5 - 12	ON ON
1) Bits 5 and 6 of the odd T0 in use (Default setting)	W28;3 - 14	ON
2) Bits 5, 6, 7, and 8 of the odd T0 in use	W28;3 - 14	OFF
Supervision of the far-end error ratio (10e-6); T0/B4-bit:		
An alarm is sent to the far end	W28;7 - 10	ON
No alarm is sent to the far end (Default setting)	W28;7 -10	OFF
Transmission redundancy:		
Transmission redundancy in use	W28;8 - 9	ON
Transmission redundancy not in use (Default setting)	W28;8 - 9	OFF

Optional grounding settings (W2, W4, W11, W13)

Table 108.   Optional settings for grounding the cable sheaths of ET2E-SC
(W2, W4, W11, and W13)

Jumper group	Settin	Selection criteria	Notes
W2;ALL	OFF	The cable sheath of the PCM trunk circuit 0 in the outgoing direction is separated from the plug-in unit ground.	1)
W2;2 - 3	ON	The cable sheath of the PCM trunk circuit 0 in the outgoing direction is galvanically connected to the plug-in unit ground.	Default 1)
W2;1 - 2	ON	The cable sheath of the PCM trunk circuit 0 in the outgoing direction is capacitively connected to the plug-in unit ground.	1)
W4; ALL	OFF	The cable sheath of the PCM trunk circuit 0 in the incoming direction is separated from the plug-in unit ground.	1)
W4;2 - 3	ON	The cable sheath of the PCM trunk circuit 0 in the incoming direction is galvanically connected to the plug-in unit ground.	Default 1)
W4;1 - 2	ON	The cable sheath of the PCM trunk circuit 0 in the incoming direction is capacitively connected to the plug-in unit ground.	1)
W11;ALL	OFF	The cable sheath of the PCM trunk circuit 1 in the outgoing direction is separated from the plug-in unit ground.	1)
W11;2 - 3	ON	The cable sheath of the PCM trunk circuit 1 in the outgoing direction is galvanically connected to the plug-in unit ground.	Default 1)
W11;1 - 2	ON	The cable sheath of the PCM trunk circuit 1 in the outgoing direction is capacitively connected to the plug-in unit ground.	1)
W13;ALL	OFF	The cable sheath of the PCM trunk circuit 1 in the incoming direction is separated from the plug-in unit ground.	1)
W13;2 - 3	ON	The cable sheath of the PCM trunk circuit 1 in the incoming direction is galvanically connected to the plug-in unit ground.	Default 1)

Table 108.   Optional settings for grounding the cable sheaths of ET2E-SC
(W2, W4, W11, and W13) (cont.)

Jumper group	Settin	Selection criteria	Notes
W13;1 - 2	ON	The cable sheath of the PCM trunk circuit 1 in the incoming direction is capacitively connected to the plug-in unit ground.	1)

1) The default settings that are factory settings are normally applicable (M92 and M98 mechanics) as shown in *Standard settings* above. However, these settings can be changed as described in this table if required. More information on grounding alternatives is available in the document: *Grounding of External Interface Cables* .

Interchangeability code settings (W22)

Table 109.   Interchangeability code settings of ET2E-SC (W22)

ICC code	W22 setting	
	1 - 2	3 - 4
A, E, J or N	ON	ON
B, F, K or P	OFF	ON
C, G, L or R	ON	OFF
D, H, M or S	OFF	OFF

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DN03318212
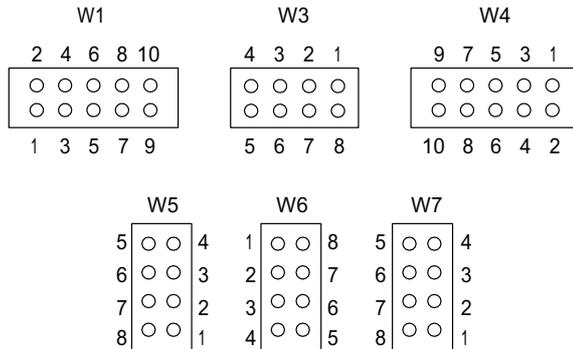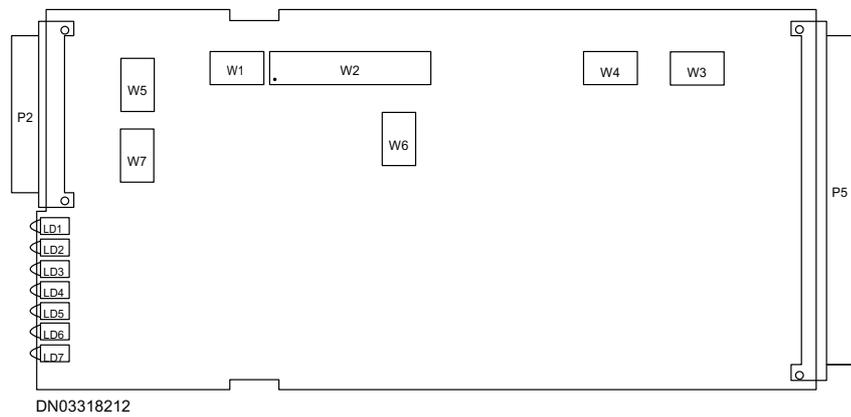
Figure 27.   Jumpers of ET2E-T and ECE2

Note

W2 is a PRTA connector.

W4, W5 and W7

The table below presents user changeable settings. By default, all the strappings are unset.

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Note

How setting W4: 9-10 functions, depends on the Interchangeability code (A or B) of the plug-in unit.

___

Table 110. Strappings of ET2E-T and ECE2 (W4, W5 and W7).

Connection	Setting	Meaning	Note
W4	1-2	Used only in T1/JT1 variants.	
	3-4	Used only in T1/JT1 variants.	
	5-6	B4/TS0 Set: Bit error rate alarm enabled. Unset: Normal operating mode.	
	7-8	Echo cancellation mode Set: ISC Unset: MSC	
	9-10	Flash boot sector protection A: Set: Unprotected Unset: Protected B: Set: Protected Unset: Unprotected	A = Interchangeability code A B = Interchangeability code B

Table 110.   Strappings of ET2E-T and ECE2 (W4, W5 and W7). (cont.)

Connection	Setting	Meaning	Note
W5	1-8	PCM0 cable sheath grounding, receive Set: Grounded Unset: Not grounded	
	3-6	PCM0 cable sheath grounding, transmit Set: Grounded Unset: Not grounded	
W7	1-8	PCM1 cable sheath grounding, receive Set: Grounded Unset: Not grounded	
	3-6	PCM1 cable sheath grounding, transmit Set: Grounded Unset: Not grounded	

W3, Interchangeability code settings

Table 111.   Interchangeability (ICC) code settings (W3).

ICC code	Setting			
	W3: 4-5 (MSB)	W3: 3-6	W3: 2-7	W3: 1-8 (LSB)
A	OFF	OFF	OFF	OFF
B	OFF	OFF	OFF	ON
C	OFF	OFF	ON	OFF
D	OFF	OFF	ON	ON
E	OFF	ON	OFF	OFF
F	OFF	ON	OFF	ON

Table 111.   Interchangeability (ICC) code settings (W3). (cont.)

ICC code	Setting			
G	OFF	ON	ON	OFF
H	OFF	ON	ON	ON
J	ON	OFF	OFF	OFF
K	ON	OFF	OFF	ON
L	ON	OFF	ON	OFF
M	ON	OFF	ON	ON
N	ON	ON	OFF	OFF
P	ON	ON	OFF	ON
R	ON	ON	ON	OFF

W1, W2 and W6

The FPGA, FALC56 and daughter board include a JTAG interface (W1), which is connected to a 2x5 pin strip.

W2 is a PRTA interface (for test adapter).

W6 is used for watchdog settings, see the table below.

Table 112.   Watchdog settings (W6).

Connection	Setting	Setting
W6	1-8	Spare
	2-7	Spare
	3-6	Spare
	4-5	Watchdog set: disabled Watchdog unset: enabled (default)

Spare strappings can be removed and used in other locations, if need be.

26 ET2E-TC C105508, ECE2-C C105511
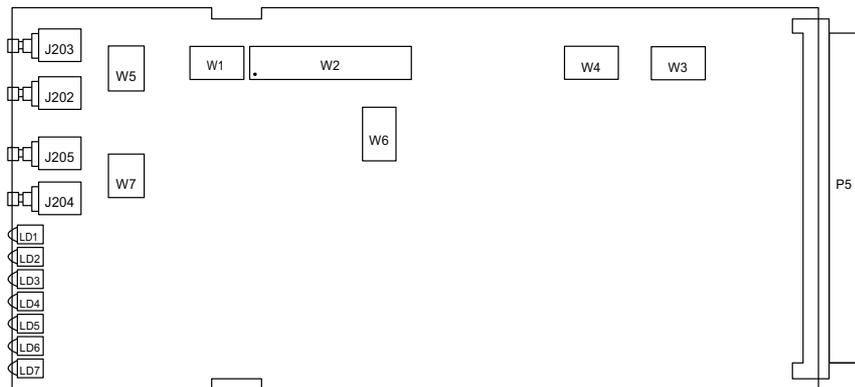
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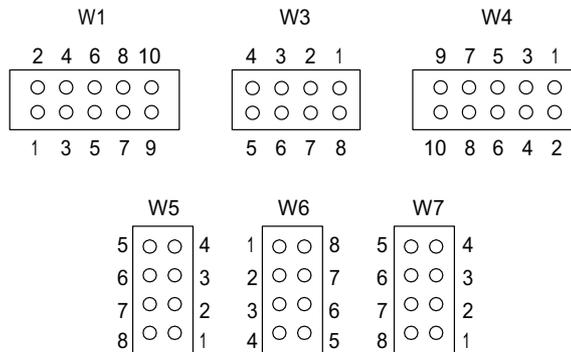
Figure 28.   Jumpers of ET2E-TC and ECE2-C

Note

W2 ia a PRTA connector.

W4, W5 and W7

The following table presents user changeable settings. By default, all the strappings are unset.

Note

How setting W4: 9-10 functions, depends on the Interchangeability code (A or B) of the plug-in unit.

Table 113.   Strappings of ET2E-TC and ECE2-C (W4, W5 and W7).

Connection	Setting	Meaning	Note
W4	1-2	Used only in T1/JT1 variants.	
	3-4	Used only in T1/JT1 variants.	
	5-6	B4/TS0 Set: Bit error rate alarm enabled. Unset: Normal operating mode.	
	7-8	Echo cancellation mode Set: ISC Unset: MSC	
	9-10	Flash boot sector protection A: Set: Unprotected Unset: Protected B: Set: Protected Unset: Unprotected	A = Interchangeability code A B = Interchangeability code B

Table 113.   Strappings of ET2E-TC and ECE2-C (W4, W5 and W7). (cont.)

Connection	Setting	Meaning	Note
W5	1-8	PCM0 cable sheath grounding, receive Set: Grounded Unset: Not grounded	
	3-6	PCM0 cable sheath grounding, transmit Set: Grounded Unset: Not grounded	
W7	1-8	PCM1 cable sheath grounding, receive Set: Grounded Unset: Not grounded	
	3-6	PCM1 cable sheath grounding, transmit Set: Grounded Unset: Not grounded	

W3, Interchangeability code settings

Table 114.   Interchangeability (ICC) code settings (W3).

ICC code	Setting			
	W3: 4-5 (MSB)	W3: 3-6	W3: 2-7	W3: 1-8 (LSB)
A	OFF	OFF	OFF	OFF
B	OFF	OFF	OFF	ON
C	OFF	OFF	ON	OFF
D	OFF	OFF	ON	ON
E	OFF	ON	OFF	OFF
F	OFF	ON	OFF	ON

Table 114.   Interchangeability (ICC) code settings (W3). (cont.)

ICC code	Setting			
G	OFF	ON	ON	OFF
H	OFF	ON	ON	ON
J	ON	OFF	OFF	OFF
K	ON	OFF	OFF	ON
L	ON	OFF	ON	OFF
M	ON	OFF	ON	ON
N	ON	ON	OFF	OFF
P	ON	ON	OFF	ON
R	ON	ON	ON	OFF

W1, W2 and W6

The FPGA, FALC56 and daughter board include a JTAG interface (W1), which is connected to a 2x5 pin strip.

W2 is a PRTA interface (for test adapter).

W6 is used for watchdog settings, see the table below.

Table 115.   Watchdog settings (W6).

Connection	Setting	Setting
W6	1-8	Spare
	2-7	Spare
	3-6	Spare
	4-5	Watchdog set: disabled Watchdog unset: enabled (default)

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Spare strappings can be removed and used in other locations, if need be.

27 HWAT, version 2 C08641
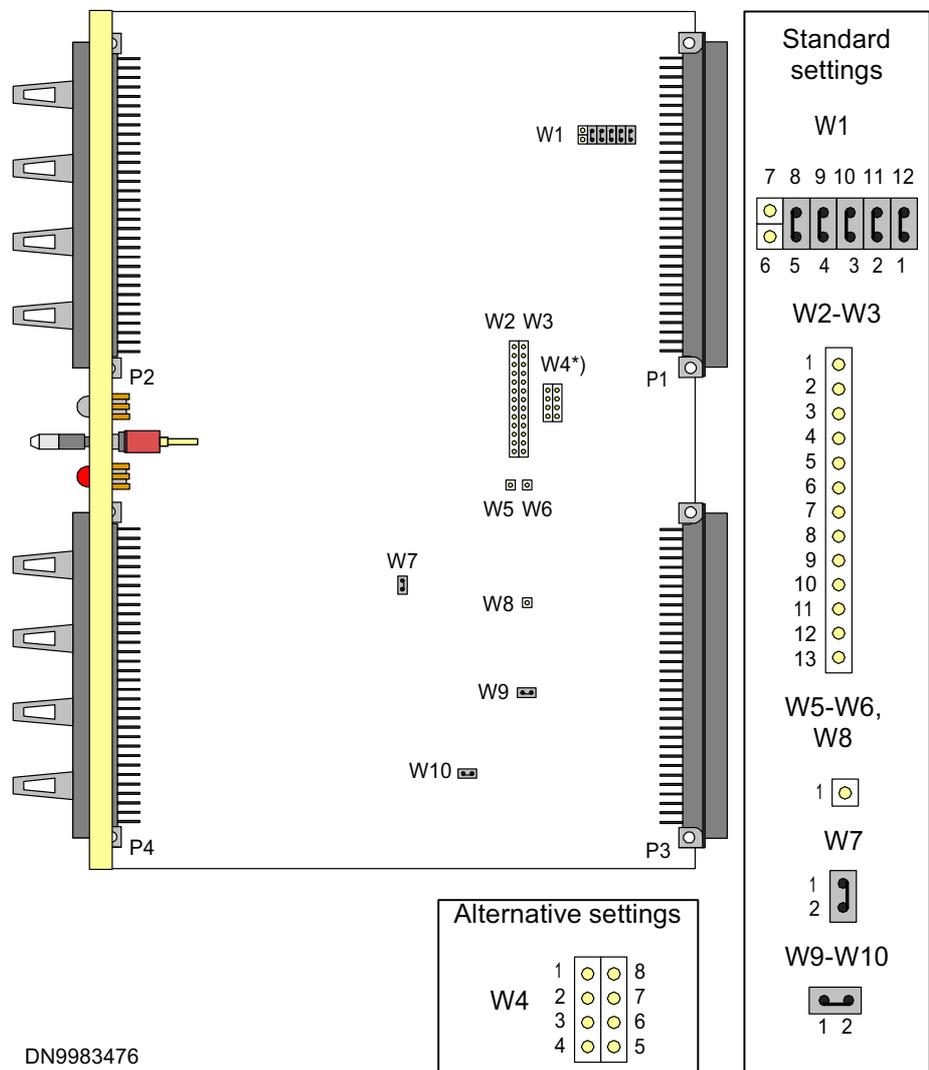
Figure 29.   Jumpers of the plug-in unit HWAT.

*) Alternative settings are presented in the table below.

Standard settings

Table 116.   Standard settings.

Jumper group	Jumper	Note
W1	1-12 2-11 3-10 4-9 5-8	Base address 80000H
W2	-	Connector to test adapter of processor (PRTA) with W3
W3	-	Connector to test adapter of processor (PRTA) with W2
W5	-	
W6	-	
W7	1-2	
W8	-	
W9	1-2	
W10	1-2	

When referring to the base address seen from the main processor, the hexadecimal digit 800 or the old E0 is placed before the address

Interchangeability code (W4)

Table 117.   Setting of the interchangeability code.

Jumper	Interchangeability code													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R
W4: 1-8	X		X		X		X		X		X		X		X

Table 117.   Setting of the interchangeability code. (cont.)

Jumper	Interchangeability code														
2-7	X	X			X	X			X	X			X	X	
3-6	X	X	X	X					X	X	X	X			
4-5	X	X	X	X	X	X	X	X							

In the table, X = the corresponding connection is made, and blank = the corresponding connection is not made

Note

Letters I, O, and Q may not be used as interchangeability codes.

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DN9983491
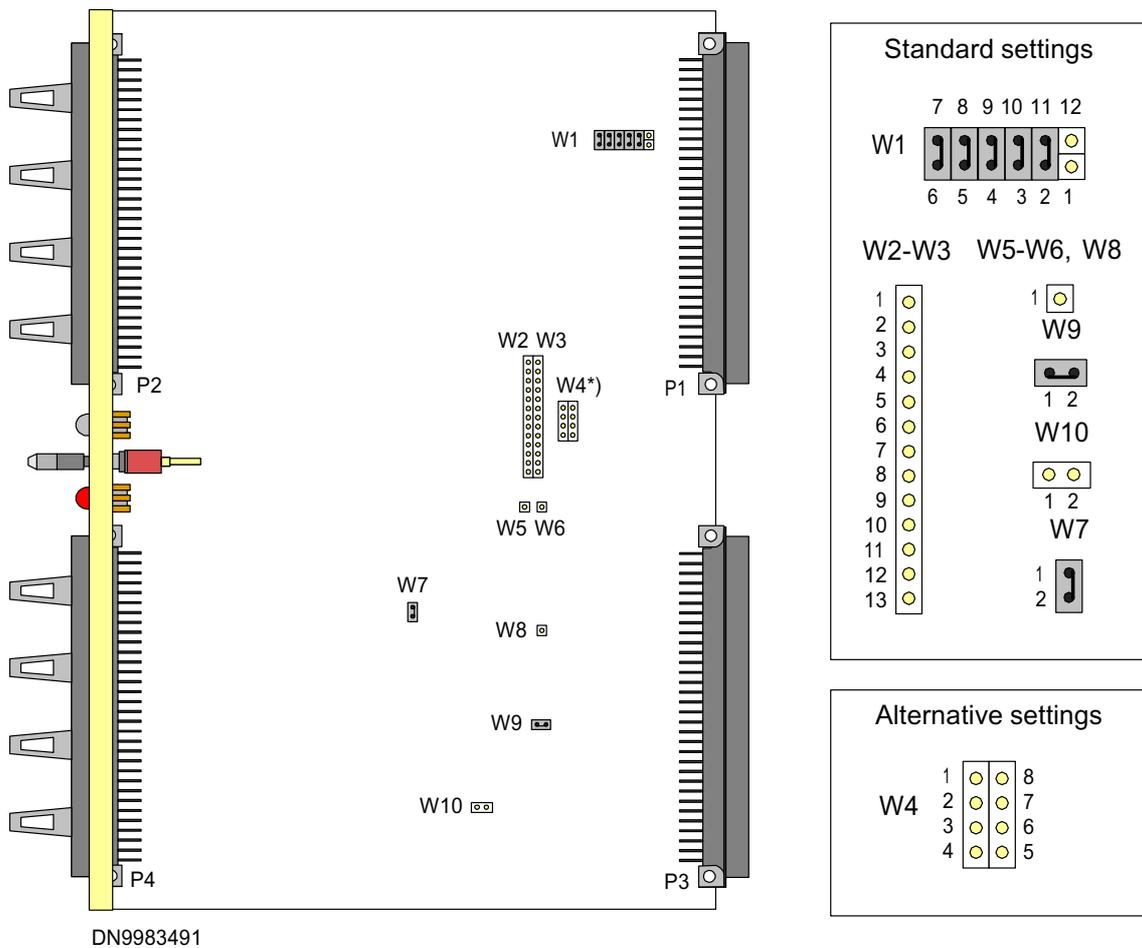
Figure 30.   Jumpers of the plug-in unit HWAT.

*) Alternative settings are presented in the table below.

Standard settings

Table 118.   Standard settings.

Jumper group	Jumper	Note
W1	2-11 3-10 4-9 5-8 6-7	Base address 80000H
W2	-	Connector to the test adapter of processor (PRTA) with W3
W3	-	Connector to the test adapter of processor (PRTA) with W2
W5	-	
W6	-	
W7	1-2	
W8	-	
W9	1-2	
W10	-	

When referring to the base address seen from the main processor, the hexadecimal digit 800 or the old E0 is placed before the address

Interchangeability code (W4)

Table 119.   Setting of the interchangeability code.

Jumper	Interchangeability code													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R
W4: 1-8	X		X		X		X		X		X		X		X

Table 119.   Setting of the interchangeability code. (cont.)

Jumper	Interchangeability code														
2-7	X	X			X	X			X	X			X	X	
3-6	X	X	X	X					X	X	X	X			
4-5	X	X	X	X	X	X	X	X							

In the table, X = the corresponding connection is made, and blank = the corresponding connection is not made

___

Note

Letters I, O, and Q may not be used as interchangeability codes.

___

29 MBIF-T C08512
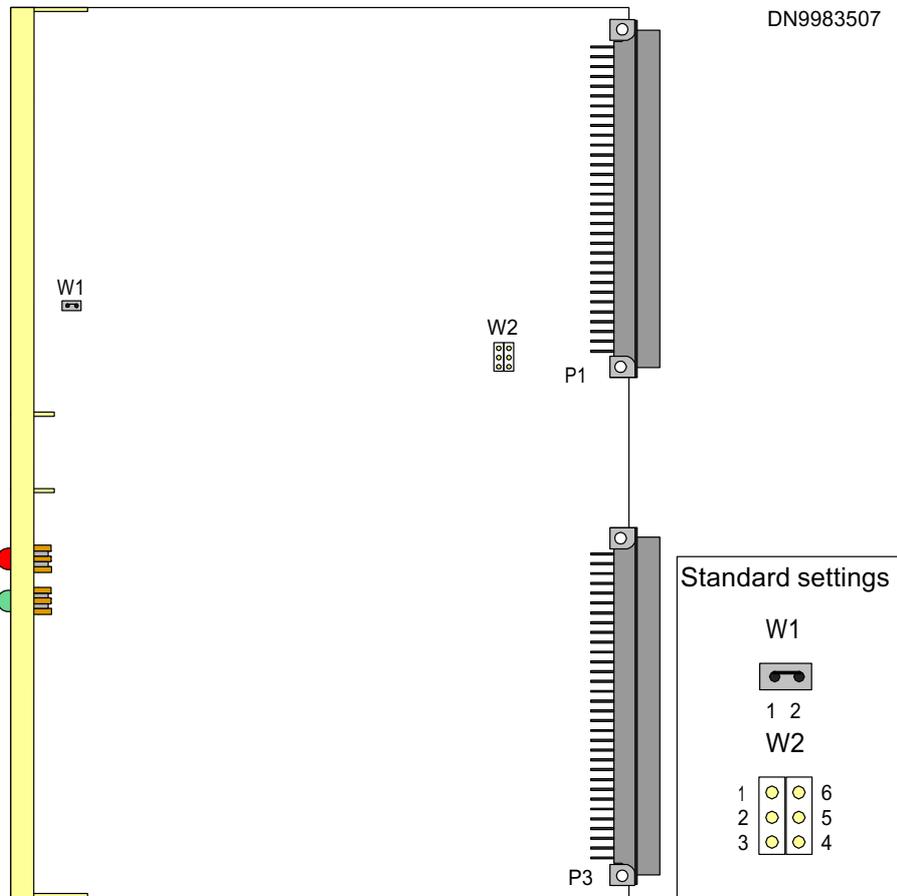
Figure 31.   Jumpers of plug-in unit of MBIF-T.

Table 120.   Standard settings of MBIF-T.

Jumper group	Jumper	Note
W1	1-2	
W2	-	I/O base address 0000H

30 MBIF-UA C08887/MBIF-V C08744
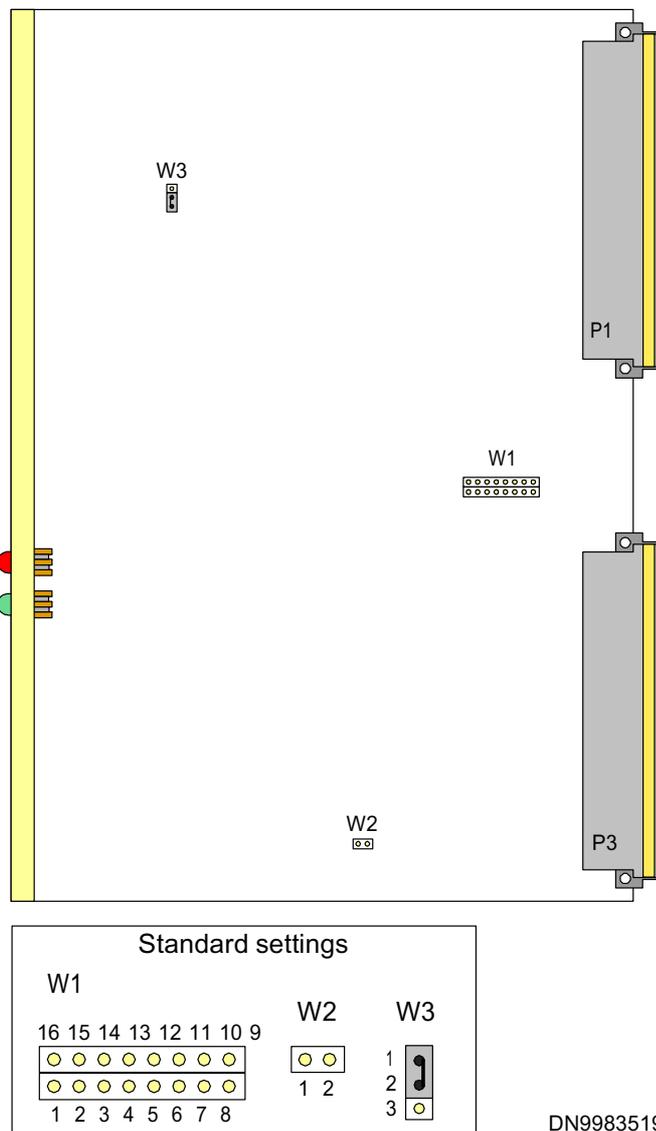
Figure 32.   Jumpers and standard settings in the MBIF-UA and MBIF-V.

Standard settings of MBIF-UA and MBIF-V

Table 121.   Standard settings of MBIF-UA and MBIF-V.

Jumper group	Jumper	Note
W1	-	Wired addresses with 7 bits, selection of the arbitration and transmission frequency with wirings, transmission time of messages has not been expedited 1)
W2	-	Message bus operation selection, no setting required
W3	1-2	The message bus reception moment is 31 ns before the transmission cycle ends

1) In the MBIF-UA/-V in jumper group W1 no jumpers are set, because the arbitration and transmission frequencies are selected by the setting module MBFRE02 placed at the rear connector of the cartridge.

Description: In the MBIF-UA/-V in jumper group W1, pin pairs 5-12, 6-11 and 8-9 (jumpers defining the arbitration and transmission frequencies) can be ready-connected but they have no actual effect when the pin pair 1-16 is not connected (1-16 defines whether the arbitration and transmission frequencies are selected by wirings in the rear connector or by jumpers in the plug-in unit).

31 PCU C72070, PCU-S C74840, PCU-T C105254
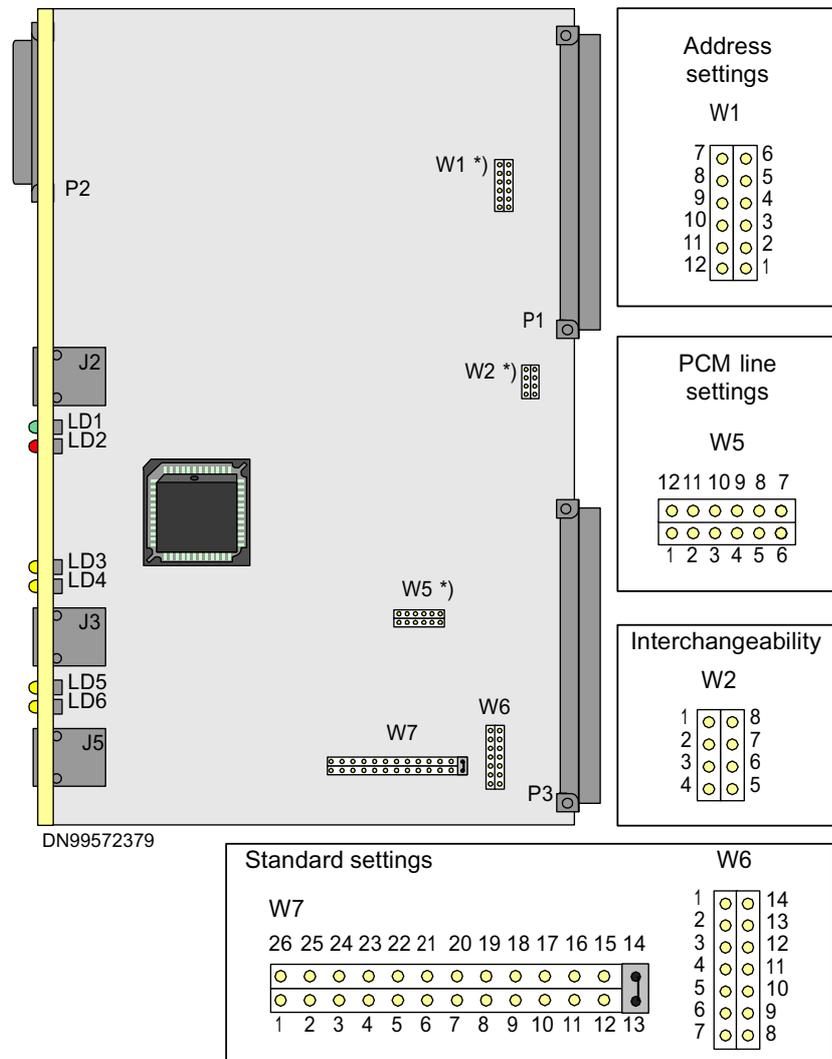
Figure 33.   Jumpers of plug-in unit of PCU(-S).

*) Alternative settings are presented in the tables below.

There are five jumper blocks in the PCU(-S) plug-in unit: W1, W2, W5, W6 and W7. In normal use, jumper blocks W6 and W7 are left unconnected because they are for testing purposes only.

Standard settings

In jumper group W7, jumper setting 13-14 is a standard setting.

Within the PCU(-S) plug-in unit, the use of boundary scan is controlled by a signal called TRST. TRST signal is not needed in normal operation. Pulling this signal low by setting jumper 13-14 eliminates possible faulty function of the DSPs.

Base address

The base address in the DMC bus is selected on 512 Kbyte-steps with the 2 x 6-pin jumper group W1 (see the table below).

Table 122.   Selection of the base address.

	Settings						Base address
W1	1-12	2-11	3-10	4-9	5-8	6-7	
	X	X	X	X	X	X	80000000
	-	X	X	X	X	X	80080000
	X	-	X	X	X	X	80100000
	-	-	X	X	X	X	80180000
	X	X	-	X	X	X	80200000
	-	X	-	X	X	X	80280000
	X	-	-	X	X	X	80300000 (1)
	-	-	-	X	X	X	80380000
	X	X	X	-	X	X	80400000 (2)
	-	X	X	-	X	X	80480000
	X	-	X	-	X	X	80500000 (3)

Table 122.   Selection of the base address. (cont.)

	Settings						Base address
	-	-	X	-	X	X	80580000
	X	X	-	-	X	X	80600000
	-	X	-	-	X	X	80680000
	X	-	-	-	X	X	80700000
	-	-	-	-	X	X	80780000
	X	X	X	X	-	X	80800000
	-	X	X	X	-	X	80880000
	X	-	X	X	-	X	80900000
	-	-	X	X	-	X	80980000
	X	X	-	X	-	X	80A00000
	-	X	-	X	-	X	80A80000
	X	-	-	X	-	X	80B00000
	-	-	-	X	-	X	80B80000
	X	X	X	-	-	X	80C00000
	-	X	X	-	-	X	80C80000
	X	-	X	-	-	X	80D00000
	-	-	X	-	-	X	80D80000
	X	X	-	-	-	X	80E00000
	-	X	-	-	-	X	80E80000
	X	-	-	-	-	X	80F00000
	-	-	-	-	-	X	80F80000
	X	X	X	X	X	-	81000000
	-	X	X	X	X	-	81080000
	X	-	X	X	X	-	81100000

Table 122.   Selection of the base address. (cont.)

Settings						Base address
-	-	X	X	X	-	81180000
X	X	-	X	X	-	81200000
-	X	-	X	X	-	81280000
X	-	-	X	X	-	81300000
-	-	-	X	X	-	81380000
X	X	X	-	X	-	81400000
-	X	X	-	X	-	81480000
X	-	X	-	X	-	81500000
-	-	X	-	X	-	81580000
X	X	-	-	X	-	81600000
-	X	-	-	X	-	81680000
X	-	-	-	X	-	81700000
-	-	-	-	X	-	81780000
X	X	X	X	-	-	81800000
-	X	X	X	-	-	81880000
X	-	X	X	-	-	81900000
-	-	X	X	-	-	81980000
X	X	-	X	-	-	81A00000
-	X	-	X	-	-	81A80000
X	-	-	X	-	-	81B00000
-	-	-	X	-	-	81B80000
X	X	X	-	-	-	81C00000
-	X	X	-	-	-	81C80000
X	-	X	-	-	-	81D00000

Table 122.   Selection of the base address. (cont.)

	Settings						Base address
	-	-	X	-	-	-	81D80000
	X	X	-	-	-	-	81E00000
	-	X	-	-	-	-	81E80000
	X	-	-	-	-	-	81F00000
	-	-	-	-	-	-	81F80000

(1) Set when the PCU(-S) is installed in unit slot 07 in the BCSU

(2) Set when the PCU(-S) is installed in unit slot 08 in the BCSU

(3) Set when the PCU(-S) is installed in unit slot 09 in the BCSU

PCM line conguration

PCM line configuration is selected with a 2 x 6-pin jumper block W5 (see the table below). The settings presented in the table below are valid only if the back board PCM interface is in use.

Table 123.   Identification register of a PCU(-S) plug-in unit.

Pins	Setting	Description
W5: 1-12	Jumper out	No control by the time-slot for the PCM line connected to MPC 8260
	Jumper in	Control by the time-slot is selected
W5: 2-11		If jumper block 1-12 is set, settings of this pair (2-11) are meaningful. –Timeslot selection registers are controlled by MPC 8260 and are in use only when this function is enabled with jumper setting 1-12. Time slot selection can be used only if the PCMs of the MPC 8260 and DSP are connected to different lines (setting 5-8).
	Jumper out	The odd line is controlled

Table 123.   Identification register of a PCU(-S) plug-in unit. (cont.)

Pins	Setting	Description
	Jumper in	The even line is controlled
W5: 3-10	Jumper out	The even DSP PCM line is in use
	Jumper in	The even DSP PCM line is blocked
W5: 4-9	Jumper out	The odd DSP PCM line is in use
	Jumper in	The odd DSP PCM line is blocked
W5: 5-8	Jumper out	PCMs of the MPC 8260 and DSP share the same 4M line (in the back board cabling)
	Jumper in	PCMs of the MPC 8260 and DSP are connected to different lines
W5: 6-7	Jumper out	PCM connection at front panel connector
	Jumper in	PCM connection at back board connector

Interchangeability code

Table 124.   Setting of the interchangeability code.

Jumper	Interchangeability code														
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R
W2: 1-8	X		X		X		X		X		X		X		X
W: 2-7	X	X			X	X			X	X			X	X	
W2: 3-6	X	X	X	X					X	X	X	X			
W2: 4-5	X	X	X	X	X	X	X	X							

In the table, X = the corresponding connection is made, and blank = the corresponding connection is not made

Note

Letters I, O, and Q may not be used as interchangeability codes.

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The jumper groups and LED indicators of the PCU2-U plug-in unit are shown in the figure below.

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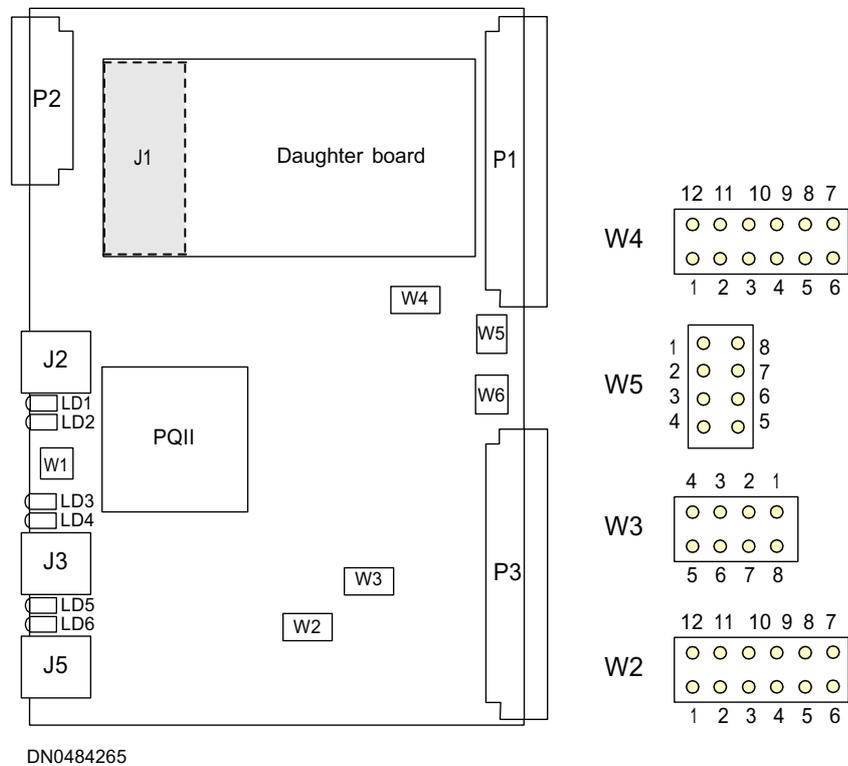
Figure 34.   The jumper groups and LED indicators of the PCU2-U

There are three switches for jumper settings on the PCU2-U PWB: The 8-pin W5 is used for setting the interchangeability code; the 12-pin W2 is used for selecting of the emulator, disabling the watchdog , selecting the debugging mode, and for selecting 4M or 8M PCM; and the 12-pin W4 is used for selecting the DMC bus base address. There are also two switches that the user does not have to set, namely: W2 for loading Lattice and W6 for testing. In addition, there is PQII emulator W1.

W5

The interchangeability code is set with 2 x 4 -pin jumper group W5 (markings: X = jumper is set; - = no jumper is set; see the table below). The use of letters I, O and Q as an interchangeability code is not allowed.

Table 125.   Setting the interchangeability code.

Code	Jumper setting			
	W5: 4-5	W5: 3-6	W5: 2-7	W5: 1-8
A	X	X	X	X
B	X	X	X	-
C	X	X	-	X
D	X	X	-	-
E	X	-	X	X
F	X	-	X	-
G	X	-	-	X
H	X	-	-	-
J	-	X	X	X
K	-	X	X	-
L	-	X	-	X
M	-	X	-	-
N	-	-	X	X
P	-	-	X	-
R	-	-	-	X

W2

The table below presents the use of W2.

Selection criteria	Setting	Explanation
Selection of emulator	1-12	Jumper is set = selection (0)
		Jumper is not set = no selection (1)
Disabling the watchdog	2-11	Jumper is set = selection (0)
		Jumper is not set = no selection (1)
Selection of debugging mode	3-10	Jumper is set = selection (0)
		Jumper is not set = no selection (1)
No selection	4-9	Not in use
Selection of 4M/8M PCM	5-8	Jumper is set = 4M PCM selected (0)
		Jumper is not set = 8M PCM selected (1)
No selection	6-7	Not in use

W4

The base address in the DMC bus is selected on 512 Kbyte-steps with the 2 x 6-pin jumper group W4 (see the table below).

Table 126.   Selection of the base address.

	Settings						Base address
W4	1-12	2-11	3-10	4-9	5-8	6-7	
	X	X	X	X	X	X	80000000
	-	X	X	X	X	X	80080000
	X	-	X	X	X	X	80100000
	-	-	X	X	X	X	80180000

Table 126. Selection of the base address. (cont.)

Settings						Base address
X	X	-	X	X	X	80200000
-	X	-	X	X	X	80280000
X	-	-	X	X	X	80300000
-	-	-	X	X	X	80380000
X	X	X	-	X	X	80400000
-	X	X	-	X	X	80480000
X	-	X	-	X	X	80500000
-	-	X	-	X	X	80580000
X	X	-	-	X	X	80600000
-	X	-	-	X	X	80680000
X	-	-	-	X	X	80700000
-	-	-	-	X	X	80780000
X	X	X	X	-	X	80800000
-	X	X	X	-	X	80880000
X	-	X	X	-	X	80900000
-	-	X	X	-	X	80980000
X	X	-	X	-	X	80A00000
-	X	-	X	-	X	80A80000
X	-	-	X	-	X	80B00000
-	-	-	X	-	X	80B80000
X	X	X	-	-	X	80C00000
-	X	X	-	-	X	80C80000
X	-	X	-	-	X	80D00000
-	-	X	-	-	X	80D80000

Table 126.   Selection of the base address. (cont.)

Settings						Base address
X	X	-	-	-	X	80E00000
-	X	-	-	-	X	80E80000
X	-	-	-	-	X	80F00000
-	-	-	-	-	X	80F80000
X	X	X	X	X	-	81000000
-	X	X	X	X	-	81080000
X	-	X	X	X	-	81100000
-	-	X	X	X	-	81180000
X	X	-	X	X	-	81200000
-	X	-	X	X	-	81280000
X	-	-	X	X	-	81300000
-	-	-	X	X	-	81380000
X	X	X	-	X	-	81400000
-	X	X	-	X	-	81480000
X	-	X	-	X	-	81500000
-	-	X	-	X	-	81580000
X	X	-	-	X	-	81600000
-	X	-	-	X	-	81680000
X	-	-	-	X	-	81700000
-	-	-	-	X	-	81780000
X	X	X	X	-	-	81800000
-	X	X	X	-	-	81880000
X	-	X	X	-	-	81900000
-	-	X	X	-	-	81980000

Table 126.   Selection of the base address. (cont.)

	Settings						**Base address**
	X	X	-	X	-	-	81A00000
	-	X	-	X	-	-	81A80000
	X	-	-	X	-	-	81B00000
	-	-	-	X	-	-	81B80000
	X	X	X	-	-	-	81C00000
	-	X	X	-	-	-	81C80000
	X	-	X	-	-	-	81D00000
	-	-	X	-	-	-	81D80000
	X	X	-	-	-	-	81E00000
	-	X	-	-	-	-	81E80000
	X	-	-	-	-	-	81F00000
	-	-	-	-	-	-	81F80000

33 SERO-T, version 1 C08652

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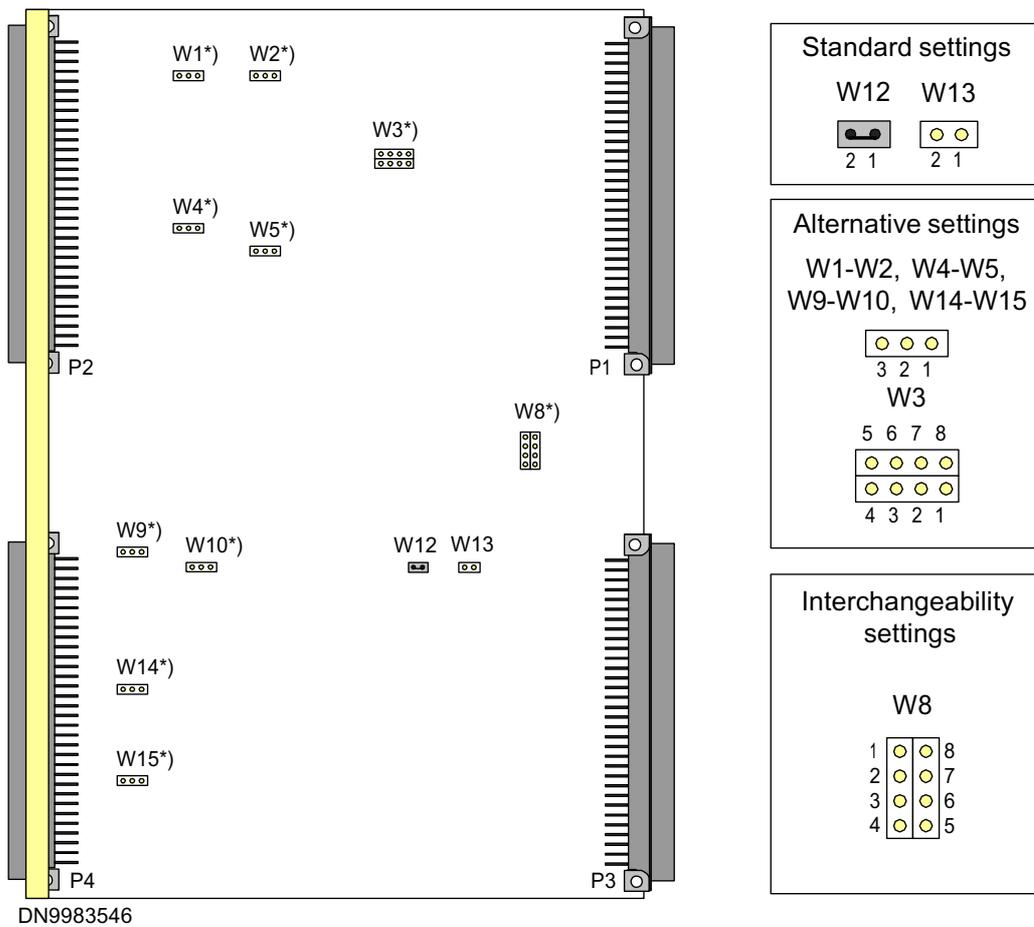
Figure 35.   Jumpers and standard settings in the SERO-T, version 1.

• The optional jumpers are presented in the tables below.

Standard settings of SERO-T, version 1

Table 127.   Standard settings of SERO-T, version 1.

Jumper group	Jumper	Note
W12	1-2	
W13	-	_INT signal is connected to pin 3a4

Alternative settings of SERO-T, version 1

Table 128.   Alternative settings of SERO-T, version 1.

Jumper group	Jumper	Selection criteria	Note
W3	1-8 2-7 3-6 4-5	MC1C cartridge (OMU) slot 6	I/O base address E000H; default setting in BSC
W4	1-2	The V.28 interface sends the CTS signal to channel 0	CTS = 'Clear to Send' signal; default setting
	2-3	The V.28 interface does not send the CTS signal to channel 0 or channel 0 uses the V.11 interface	CTS signal active (state 0), CTS = 'Clear to Send' signal
W5	1-2	The V.28 interface sends the CTS signal to channel 1	See note for W4:1-2
	2-3	The V.28 interface does not send the CTS signal to channel 1 or channel 1 uses the V.11 interface	See note for W4:2-3
W1	1-2	The V.28 interface sends the CTS signal to channel 2	See note for W4:1-2
	2-3	The V.28 interface does not send the CTS signal to channel 2 or channel 2 uses the V.11 interface	See note for W4:2-3
W2	1-2	The V.28 interface sends the CTS signal to channel 3	See note for W4:1-2
	2-3	The V.28 interface does not send the CTS signal to channel 3 or channel 3 uses the V.11 interface	See note for W4:2-3
W15	1-2	The V.28 interface sends the CTS signal to channel 4	See note for W4:1-2

Table 128.   Alternative settings of SERO-T, version 1. (cont.)

Jumper group	Jumper	Selection criteria	Note
	2-3	The V.28 interface does not send the CTS signal to channel 4 or channel 4 uses the V.11 interface	See note for W4:2-3
W14	1-2	The V.28 interface sends the CTS signal to channel 5	See note for W4:1-2
	2-3	The V.28 interface does not send the CTS signal to channel 5 or channel 5 uses the V.11 interface	See note for W4:2-3
W9	1-2	The V.28 interface sends the CTS signal to channel 6	See note for W4:1-2
	2-3	The V.28 interface does not send the CTS signal to channel 6 or channel 6 uses the V.11 interface	See note for W4:2-3
W10	1-2	The V.28 interface sends the CTS signal to channel 7	See note for W4:1-2
	2-3	The V.28 interface does not send the CTS signal to channel 7 or channel 7 uses the V.11 interface	See note for W4:2-3

Interchangeability settings

Table 129.   Interchangeability code setting (SERO-T, version 1).

Jumper	Interchangeability code														
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R
W8:1-8	X		X		X		X		X		X		X		X
2-7	X	X			X	X			X	X			X	X	
3-6	X	X	X	X					X	X	X	X			
4-5	X	X	X	X	X	X	X	X							

In the table, X = the corresponding connection is made, and blank = the corresponding connection is not made

Note

Letters I, O, and Q may not be used as interchangeability codes.

34 SERO-T, version 2 C08652

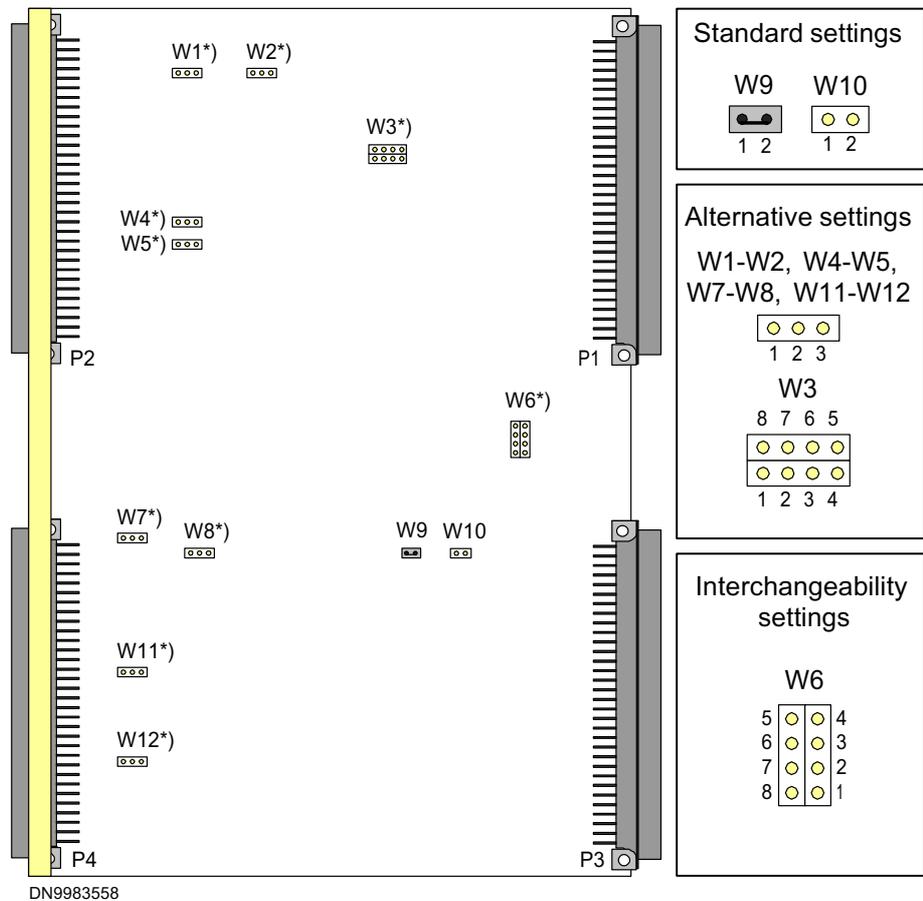DN9983558

Figure 36.   Jumper pins and standard jumpers in the SERO-T, versions 2 and
higher.

•   The optional jumpers are presented in the tables below.

Standard settings

Table 130.   Standard settings

Jumper group	Jumper	Note
W9	1-2	
W10	-	_INT signal is connected to pin 3a4

Alternative settings

Table 131.   Alternative settings.

Jumper group	Jumper	Selection criteria	Note
W3	1-8 2-7 3-6 4-5	MC1C cartridge (OMU) slot 6	I/O base address E000H; Default setting in BSC
W4	2-3	The V.28 interface sends the CTS signal to channel 0	CTS = 'Clear to Send' signal; Default setting
	1-2	The V.28 interface does not send the CTS signal to channel 0 or channel 0 uses the V.11 interface	CTS signal active (state 0) l
W5	2-3	The V.28 interface sends the CTS signal to channel 1	See note for W4:2-3
	1-2	The V.28 interface does not send the CTS signal to channel 1 or channel 1 uses the V.11 interface	See note for W4:1-2
W1	2-3	The V.28 interface sends the CTS signal to channel 2	See note for W4:2-3
	1-2	The V.28 interface does not send the CTS signal to channel 2 or channel 2 uses the V.11 interface	See note for W4:1-2
W2	2-3	The V.28 interface sends the CTS signal to channel 3	See note for W4:2-3
	1-2	The V.28 interface does not send the CTS signal to channel 3 or channel 3 uses the V.11 interface	See note for W4:1-2

Table 131. Alternative settings. (cont.)

Jumper group	Jumper	Selection criteria	Note
W12	2-3	The V.28 interface sends the CTS signal to channel 4	See note for W4:2-3
	1-2	The V.28 interface does not send the CTS signal to channel 4 or channel 4 uses the V.11 interface	See note for W4:1-2
W11	2-3	The V.28 interface sends the CTS signal to channel 5	See note for W4:2-3
	1-2	The V.28 interface does not send the CTS signal to channel 5 or channel 5 uses the V.11 interface	See note for W4:1-2
W7	2-3	The V.28 interface sends the CTS signal to channel 6	See note for W4:2-3
	1-2	The V.28 interface does not send the CTS signal to channel 6 or channel 6 uses the V.11 interface	See note for W4:1-2
W8	2-3	The V.28 interface sends the CTS signal to channel 7	See note for W4:2-3
	1-2	The V.28 interface does not send the CTS signal to channel 7 or channel 7 uses the V.11 interface	See note for W4:1-2

Interchangeability settings

Table 132. Interchangeability code setting.

Jumper	Interchangeability code													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R
W6: 1-8	X		X		X		X		X		X		X		X
2-7	X	X			X	X			X	X			X	X	
3-6	X	X	X	X					X	X	X	X			
4-5	X	X	X	X	X	X	X	X							

In the table, X = the corresponding connection is made, and blank = the corresponding connection is not made

Note

Letters I, O, and Q may not be used as interchangeability codes.

35 SCSIF C08653

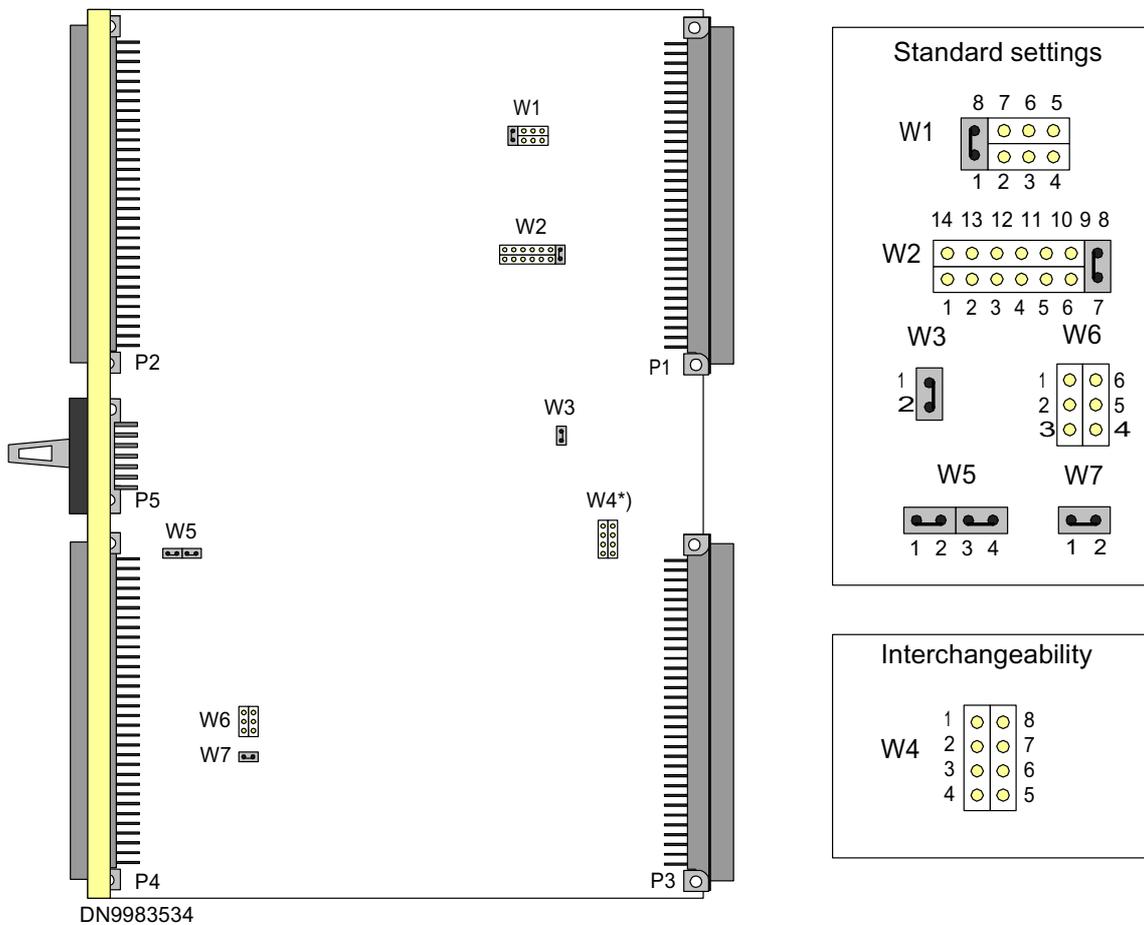Figure 37.   Jumpers of plug-in unit of SCSIF.

*) Alternative settings are presented in the tables below.

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Standard settings

Table 133.   Standard settings.

Jumper group	Jumper	Note
W1	1-8	I/O base address F000H
W2	7-8	Base address 40000H
W3	1-2	
W5	1-2 3-4	The CTSs of both channels are always active
W7	1-2	The RC circuit of reset switching of high time constant is not separated

- When referring to the base address seen from the main processor, the hexadecimal digit 800 or the old E0 is added before the address above

SCSI bus address (W6)

Table 134.   Selection of the SCSI bus address.

Plug-in unit location	Jumper	Note
MC1C (OMU) slot 05	W6: -	SCSI address = 7

Interchangeability code (W4)

Table 135.   Selection of the interchangeability code.

Jumper	Interchangeability code															
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S
W4: 1-8	X		X		X		X		X		X		X		X	
2-7	X	X			X	X			X	X			X	X		
3-6	X	X	X	X					X	X	X	X				

Table 135.   Selection of the interchangeability code. (cont.)

Jumper	Interchangeability code														
4-5	X	X	X	X	X	X	X	X							

In the table, X = the corresponding connection is made, and blank = the corresponding connection is not made

Note

Letters I, O, and Q may not be used as interchangeability codes.
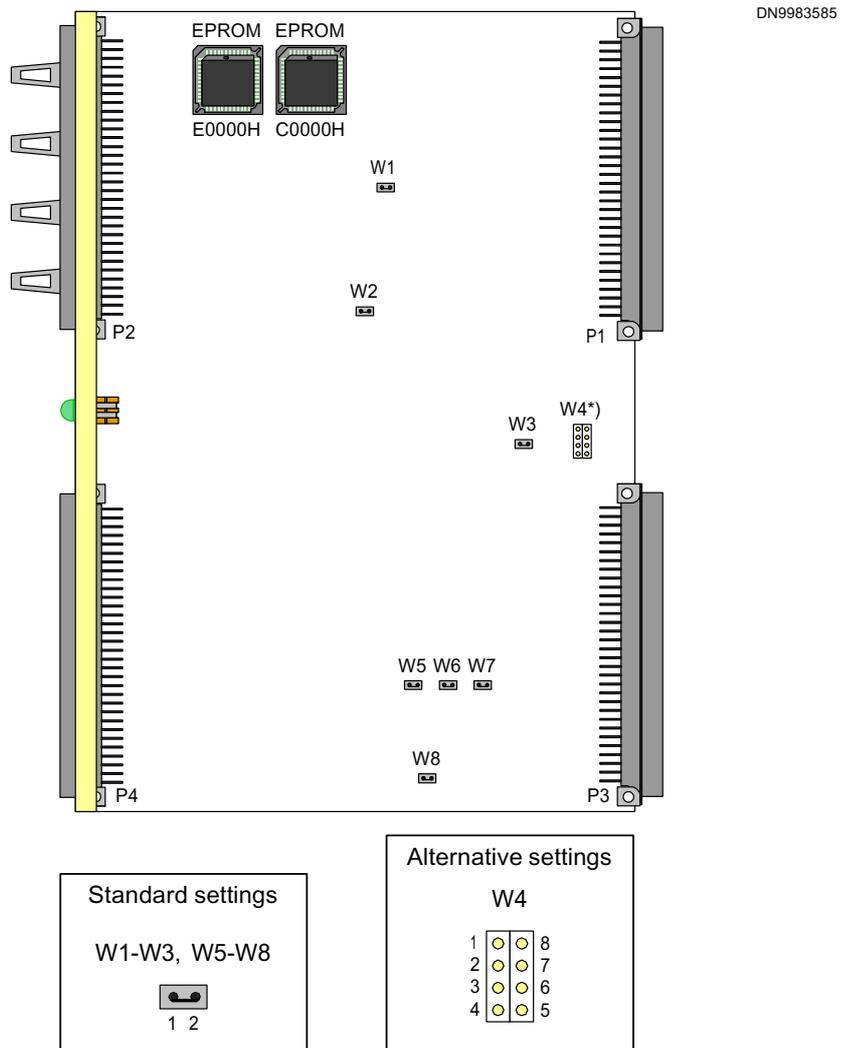
36 SWCOP-S C08655

Figure 38.   Jumpers and read only memory circuits of plug-in unit SWCOP-S.

*) Alternative settings are presented in the table below.

Standard settings

Table 136. Standard settings.

Jumper group	Jumper
W1	1-2
W2	1-2
W3	1-2
W5	1-2
W6	1-2
W7	1-2
W8	1-2

Interchangeability code (W4)

Table 137. Selection of the interchangeability code.

Jumper	Interchangeability code														
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R
W4: 1-8	X		X		X		X		X		X		X		X
2-7	X	X			X	X			X	X			X	X	
3-6	X	X	X	X					X	X	X	X			
4-5	X	X	X	X	X	X	X	X							

In the table, X = the corresponding connection is made, and blank = the corresponding connection is not made

Note

Letters I, O, and Q may not be used as interchangeability codes.

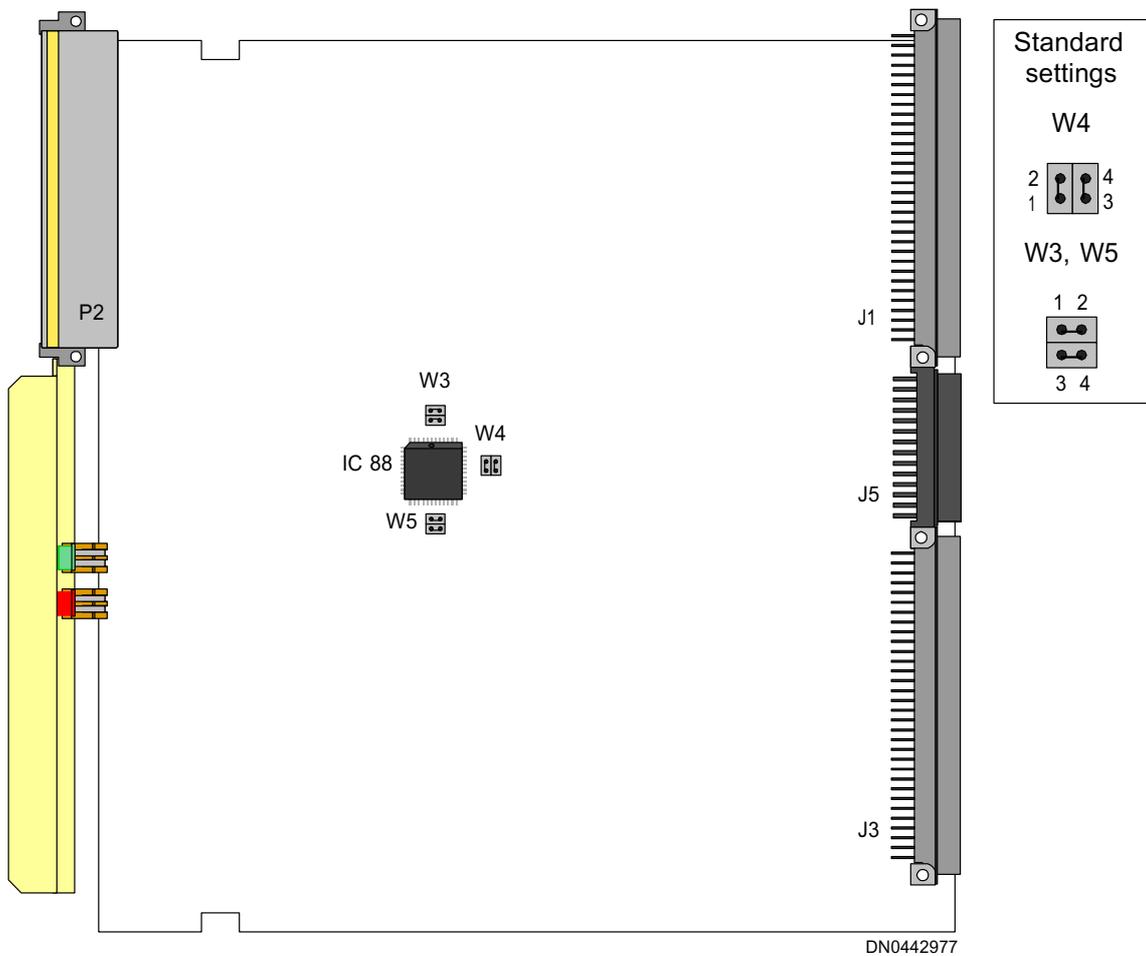**NOKIA**

37 SW64B C08790
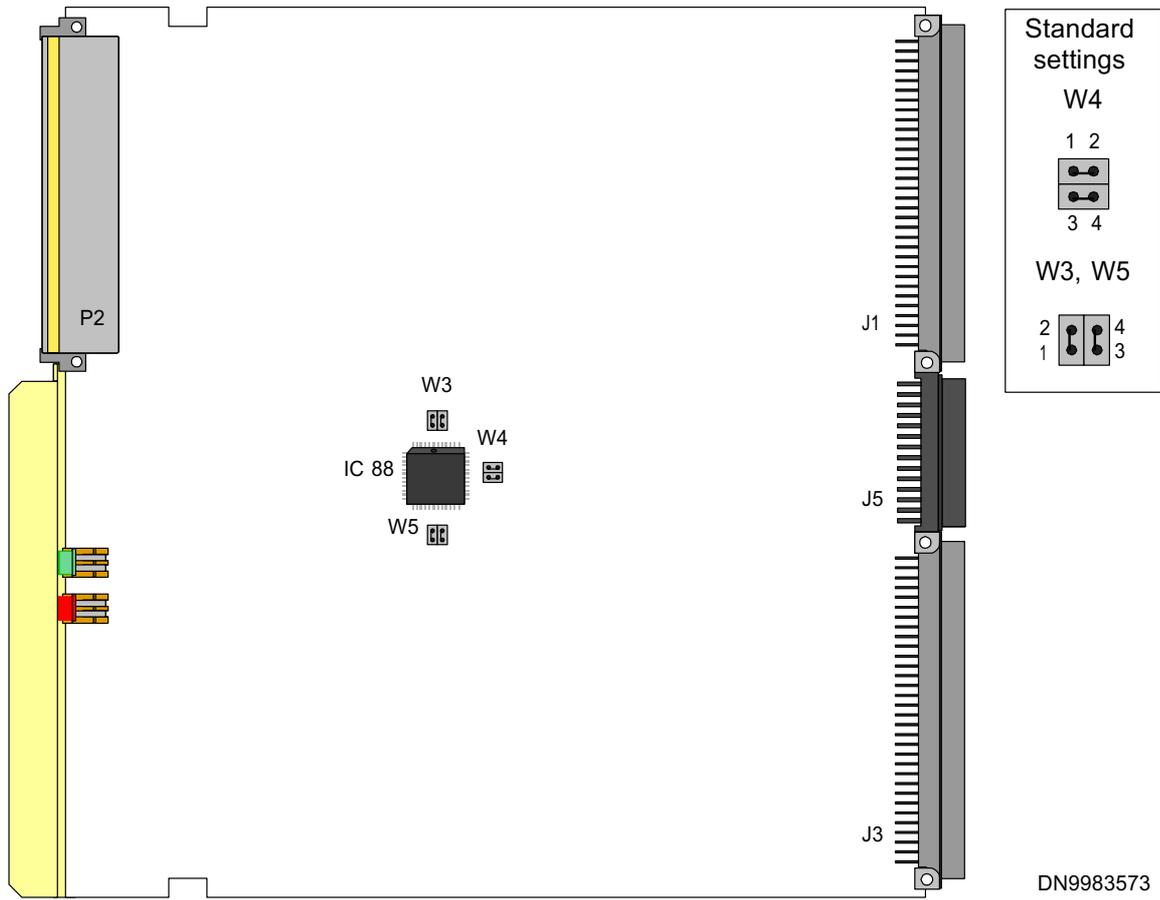

Figure 39.   Jumpers of plug-in unit of SW64B (version 5)

Figure 40.   Jumpers of plug-in unit SW64B (versions 1–4)

Standard settings

Table 138.   Standard settings

Jumper group	Jumper
W3	1-2
	3-4
W4	1-2
	3-4

Table 138.   Standard settings
(cont.)

Jumper group	Jumper
W5	1-2
	3-4

38 TRCO C08773

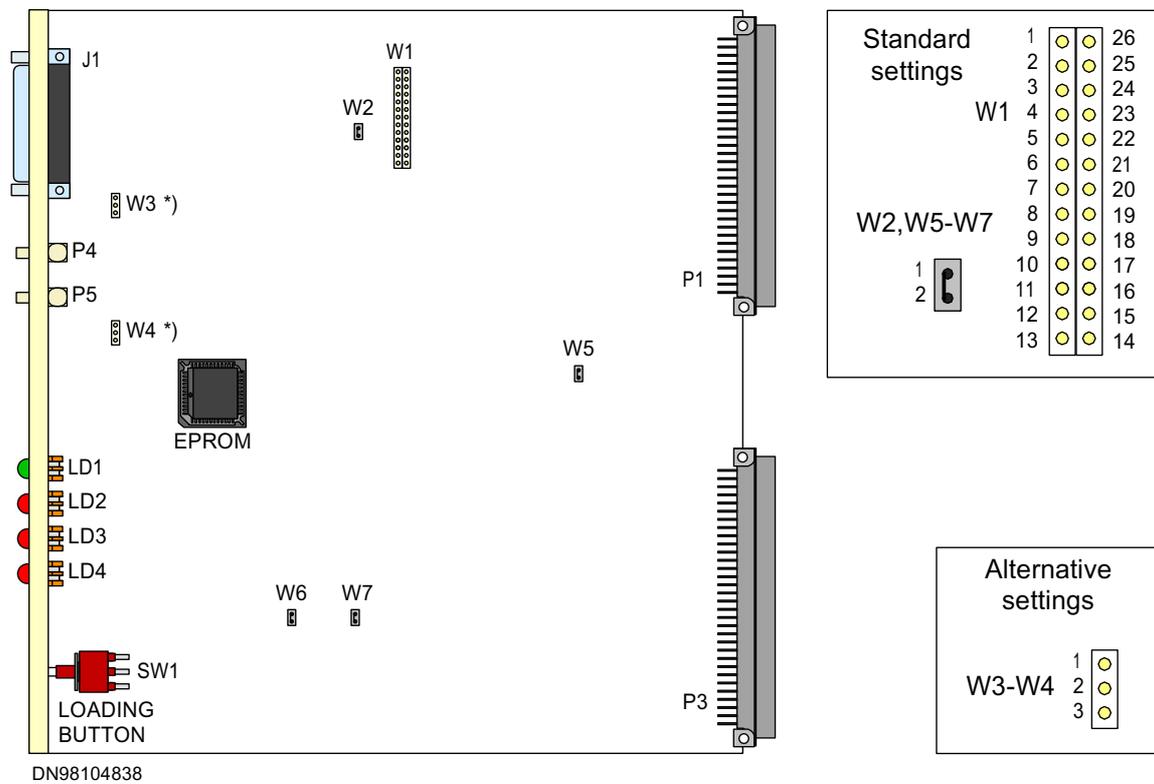**Jumper blocks and EPROM circuit of the plug-in unit**

Figure 41.   Jumper blocks and EPROM circuit of plug-in unit TRCO.

Standard settings

Jumpers for these standard settings are set at the factory, and normally there is no need to change them.

Table 139.   Standard settings.

Jumper block	Jumper	Note
W1	-	For testing purposes only. This jumper is used to connect a PRTA plug-in unit to the TRCO.
W2	1-2	To connect the clock signal to the processor of the TRCO plug-in unit.
W5	1-2	To connect the watchdog of the TRCO plug-in unit
W6	1-2	To connect the output of the D/A converter to the oscillator
W7	1-2	To connect the output of the oscillator to other circuits of the unit

Setting the external clock interfaces

The external clock input (ESI) and external clock output (ESO) interfaces can be set to balanced or unbalanced, using jumper blocks W3 and W4.

Table 140.   Setting the external clock interfaces.

Selection criteria	Jumper	Note
The ESI interface is set to be balanced	W3: 1-2 or jumper out	Default setting
The ESI interface is set to be unbalanced	W3: 2-3	
The ESO interface is set to be balanced	W4: 1-2 or jumper out	Default setting
The ESO interface is set to be unbalanced	W4: 2-3	

39 TRMC2 C22391

```
        a    c*)
     1 ◉    ◉ 1
     2 ◉    ◉ 2
     3 ◉    ◉ 3
     4 ◉    ◉ 4
     5 ◉    ◉ 5
     6 ◉    ◉ 6
     7 ◉    ◉ 7
     8 ◉    ◉ 8
     9 ◉    ◉ 9
    10 ◉    ◉ 10
    11 ◉    ◉ 11
    12 ◉    ◉ 12
    13 ◉    ◉ 13
    14 ◉    ◉ 14
    15 ◉    ◉ 15
    16 ◉    ◉ 16
    17 ◉    ◉ 17
    18 ◉    ◉ 18
    19 ◉    ◉ 19
    20 ◉    ◉ 20
    21 ◉    ◉ 21
    22 ◉    ◉ 22
    23 ◉    ◉ 23
    24 ◉    ◉ 24
    25 ◉    ◉ 25
    26 ◉    ◉ 26
    27 ◉    ◉ 27
    28 ◉    ◉ 28
    29 ◉    ◉ 29
    30 ◉    ◉ 30
    31 ◉    ◉ 31
    32 ◉    ◉ 32
```

DN9983604

Figure 42.   Pins of the termination connector TRMC2.

*) Alternative settings presented in tables; jumpers c16-c17,c18-c19 are standard

- termination connector is equipped only to the lower front connector (P4) of the SWCOP-S 0

- physically, the termination connector is a Euroconnector (2 x 32) + connector shell

Standard settings

Table 141.   Standard settings.

Pin row	Jumper	Note
c	c16-c17 c18-c19	Switchover signal is in use

LSW usage and I/O base address of the SWCOP-S (connector pins c20 and c27)

Table 142.   Selection of LSW usage and I/O base address of the unit SWCOP-S.

Selection criteria	Jumper	Note
SWCOP-S in normal use, i.e. SWCOP-S is not as an LSW controller	-	LSW = Line Signalling Switch, I/O base address 400H, default
SWCOP-S is used as an LSW controller	c20-c27	LSW = Line Signalling Switch, I/O base address 600H

Number of switching network blocks controlled by the SWCOP-S 0 (connector pins c31 and c32)

Table 143.   Selection of the number of switching network blocks controlled by the SWCOP-S 0.

Selection criteria	Jumper	Note
The number of switching network blocks controlled by SWCOP-S 0 is 1	c31-c32	
The number of switching network blocks controlled by SWCOP-S 0 is 2	-	

Number of switching network blocks controlled by the SWCOP-S 1 (connector pins c26 and c27)

Table 144.   Selection of the number of switching network blocks controlled by the SWCOP-S 1.

Selection criteria	Jumper	Note
The number of switching network blocks controlled by SWCOP-S 1 is 1	c26-c27	
The number of switching network blocks controlled by SWCOP-S 1 is 2	-	

Number of switching network blocks controlled by the SWCOP-S 2 (connector pins c24 and c29)

Table 145.   Selection of the number of switching network blocks controlled by the SWCOP-S 2.

Selection criteria	Jumper	Note
The number of switching network blocks controlled by SWCOP-S 2 is 1	c24-c29	
The number of switching network blocks controlled by SWCOP-S 2 is 2	-	

Number of switching network blocks controlled by the SWCOP-S 3 (connector pins c22 and c31)

Table 146.   Selection of the number of switching network blocks controlled by the SWCOP-S 3.

Selection criteria	Jumper	Note
The number of switching network blocks controlled by SWCOP-S 3 is 1	c22-c31	
The number od switching network blocks controlled by SWCOP-S 3 is 2	-	

Timing of the alignment signals distributed by the SWCOP-S (connector pins c27 and c28, and c29 and c30)

Table 147.   Selection of the timing of the alignment signals distributed by the SWCOP-S.

Selection criteria	Jumper	Note
Alignment signals are forwarded by +30.5 ns	-	Basic set-up
Alignment signals are forwarded by +61 ns	c27-c28	
Alignment signals are neither forwarded nor delayed (0 ns)	c29-c30	
Alignment signals are delayed by -30.5 ns	c27-c28 c29-c30	

40 TR12-T C08840, TR16-S C08841

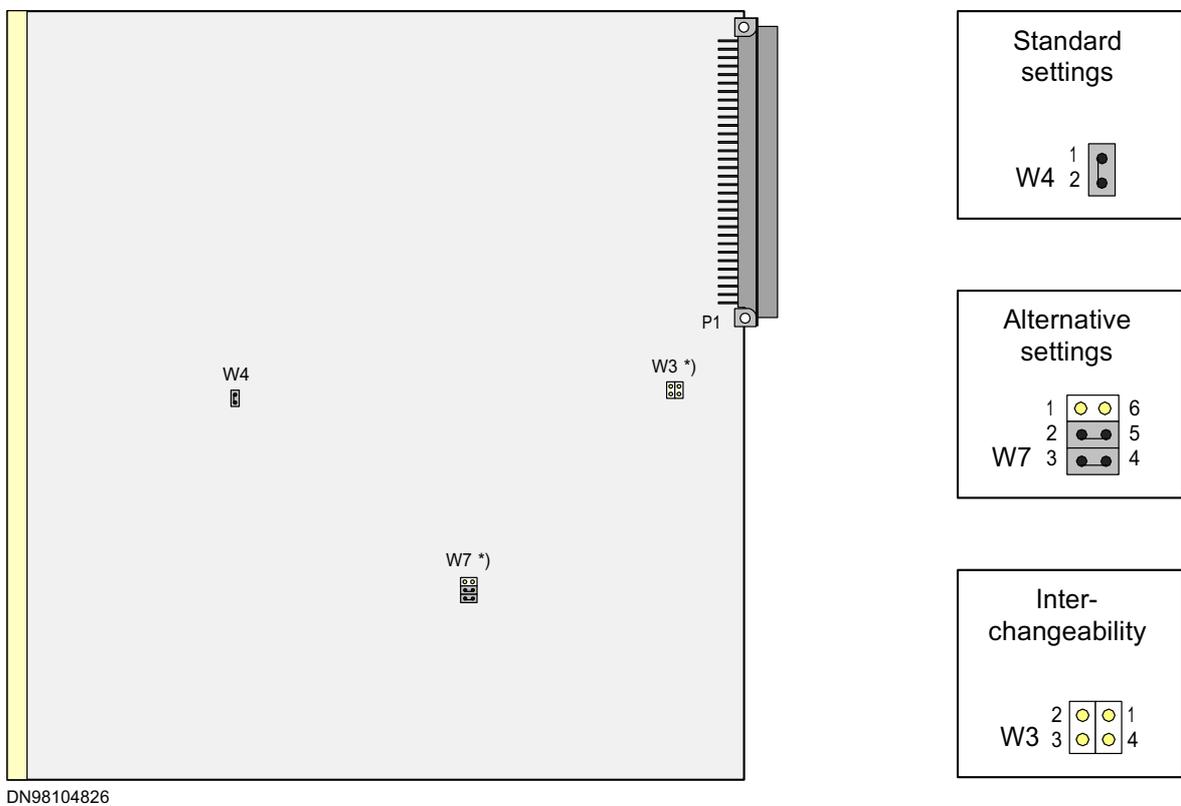**Jumper blocks of the plug-in unit**

Figure 43.   Jumper blocks of plug-in unit TR12-T.

Standard settings

Jumpers for these standard settings are set at the factory, and normally there is no need to change them.

Table 148.   Standard settings.

Jumper block	Jumper	Note
W4	1-2	The output of the external crystal oscillator is connected to DSPs in the TR plug-in unit.

Setting the clock frequency used by DSPs (W7)

- Note that the clock with 40 MHz is the only valid setting here.

Table 149.   Setting the clock frequency used by DSPs.

Selection criteria	Jumper	Note
The clock frequency is set to 20 MHz	W7: -	
The clock frequency is set to 30 MHz	W7: 1-6, 2-5 and 3-4	
The clock frequency is set to 40 MHz	W7: 3-4 and 2-5	Default and only setting

Selection of the interchangeability code (W3)

The currently valid interchangeability code is set at the factory.

Table 150.   Selection of the interchangeability code.

| Jumper | Interchangeability code | | | | | | | | | | | | | | |
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S
W3: 1-4		X		X		X		X		X		X		X		X
W3: 2-3			X	X			X	X			X	X			X	X

Note: Letters I, O, and Q may not be used as interchangeability codes.
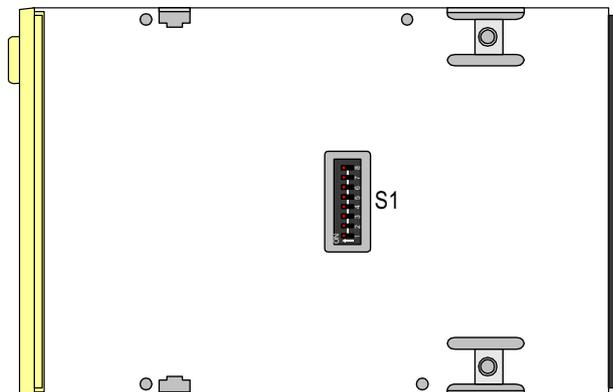
- In the interchangeability code table above, X = the jumper is set in, and blank = the jumper is removed.

41   DAT2G P01050 / DAT4G P01070

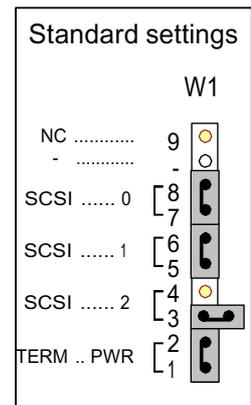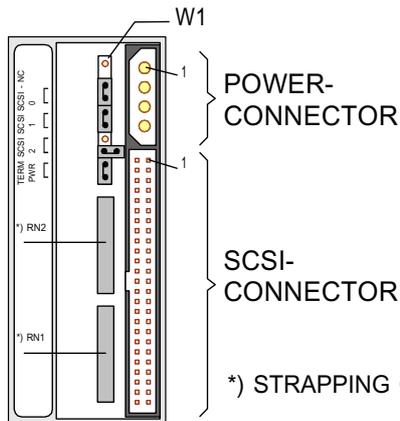**Jumpers and settings of HP 35480A and HP C1533A Drives**

LOWER SIDE

Figure 44.   Jumpers of DAT HP 35480A and HP C1533A Drives.

Table 151.   Jumper settings.

Settings for SCSI ID jumpers (W1):			
Meaning	Jumper		Comment
Connection of drive to SCSI signal TERM PWR	W1: 1-2	Jumper in, Selected	Drive is connected to SCSI signal TERM PWR
		No jumper	Drive is not connected to SCSI signal TERM PWR
SCSI address (A2, A1 and A0). Jumper sets bit to one.	W1: 7-8 (0), 5-6 (1)	Jumper in, 7-8, 5-6, Selected	(Address 3)
	W1: 3-4 (2)	No jumper	
Control of operating voltage through control cable	W1:9	Jumper in	Operating voltage is controlled through control cable
		No jumper, Selected	Operating voltage is not controlled through control cable
Settings for configuration switches (S1):			
Meaning	Switch position		Comment
Default value for compressing	S1:1	ON, Selected	Compressing is on unless it has been denied by program
		OFF	Compressing id off unless it has been allowed by program
Program control of compressing	S1:2	ON, Selected	Compressing can be switched ON/OFF by program
		OFF	Compressing cannot be switched ON/OFF by program
DAT4G (S1:3-8):			
DDS Media Recognition system settings	S1:3 *)	ON, Selected	The system is disabled. All DDS tapes will be treated the same, whether they possess the Media Recognition stripes or not.
		OFF	System is active. Non-MRS tapes will be treated as if they are write-protected.

Table 151.   Jumper settings. (cont.)

Special settings with default ON	S1: 4-8	ON, Selected	Default values are in use
		OFF	Same special setting is in use
DAT2GB (S1:3-8):			
Special settings with default ON	S1: 3-8	ON, Selected	Default values are in use

*) Check this jumper for proper setting.
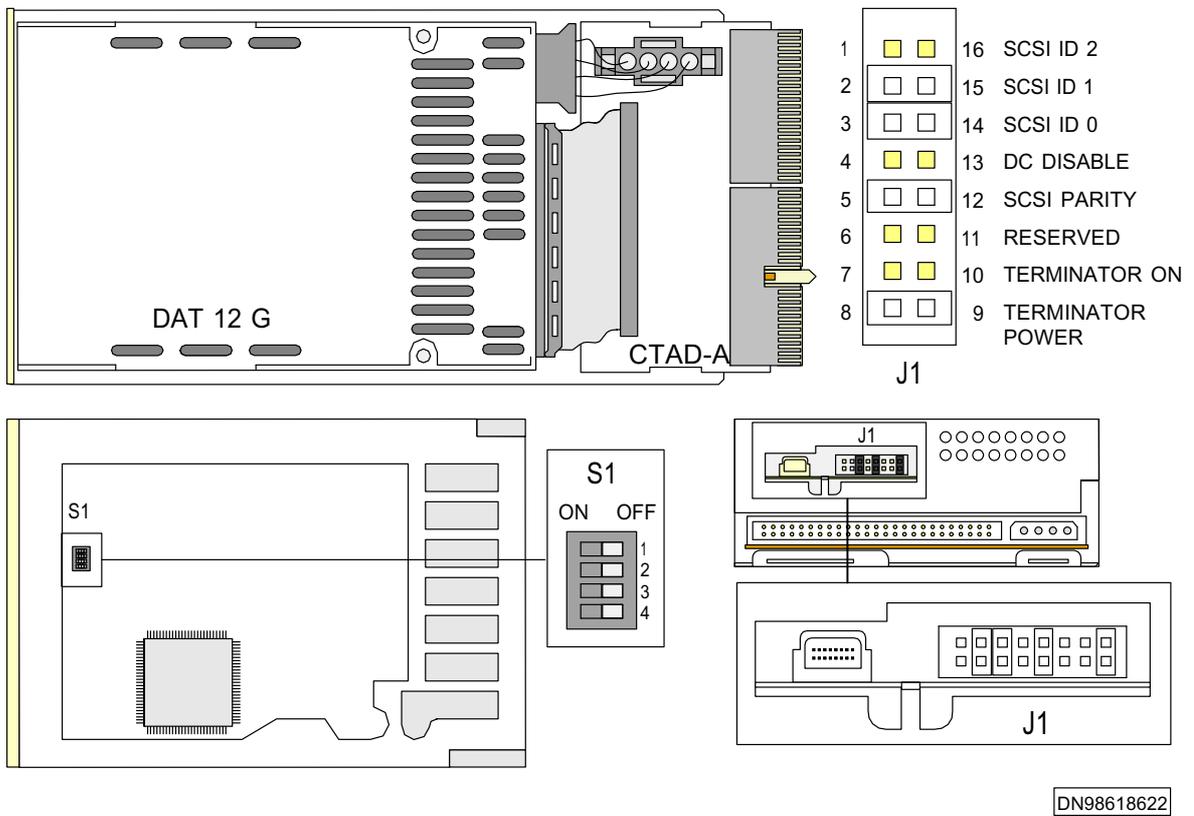
42 DAT12G drive P01074

Figure 45.   Jumpers of Sony SDT-9000 Dat Drive (lower side)

A DAT drive CTU is composed of a DAT12G (P1074) mounted on an assembly board CTAD-A (C8971) and connecting cables.

Standard settings of DAT12G (J1, S1)

Table 152. Meanings of the jumper groups J1 and S1 in DAT12G

Jumper group	Meaning	Jumper		Note
J1	SCSI ID2, address	1-16 (MSB)	OFF	Address = 3. Default setting.
	SCSI ID 1, address	2-15	ON	Address = 3. Default setting.
	SCSI ID 0, address	3-14 (LSB)	ON	Address = 3. Default setting.
	Default for compression	4-13	OFF	Data compression and decompression is enabled. Default.
	Parity checking on the SCSI-bus	5-12	ON	Enabled. Default.
	Reserved for future use	6-11	OFF	Factory setting. Default.
	Terminating resistor in the drive	7-10	OFF	Disabled. Default.
	Termination power to the SCSI-bus	8-9	OFF	Not provided. Default 1)
S1	Custom specific settings	1	OFF	All switches must be in the OFF position. Default.
		2	OFF	Default.
		3	OFF	Default.
		4	OFF	Default.

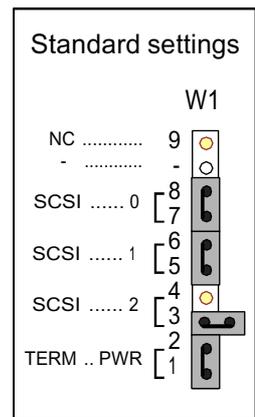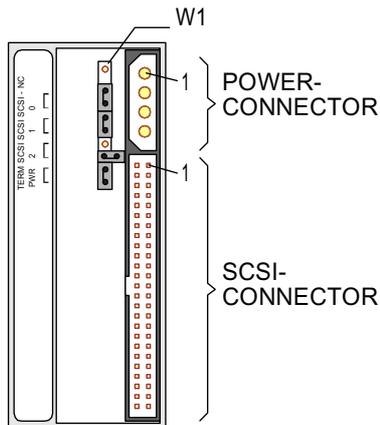1) The default setting is OFF, although in the figure above the setting is ON. Both settings work however.

43 **DAT12-S, HP C1554A Dat Drive P01074**

Jumpers and settings of the plug-in unit

LOWER SIDE
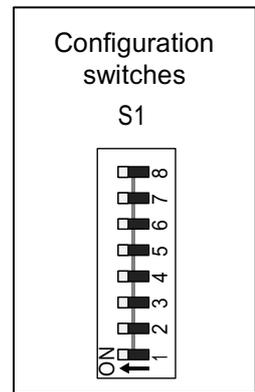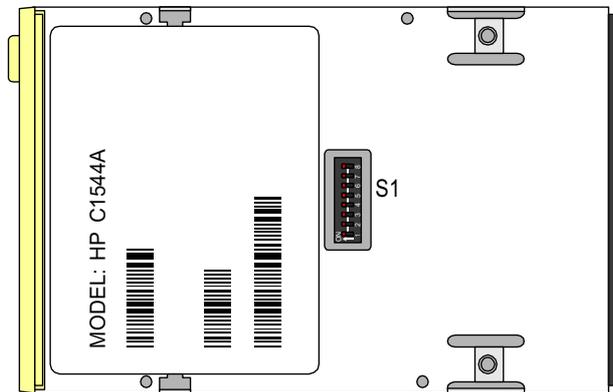
Figure 46.   Jumpers of HP C1544A Dat Drive.

Table 153.   Jumper settings.

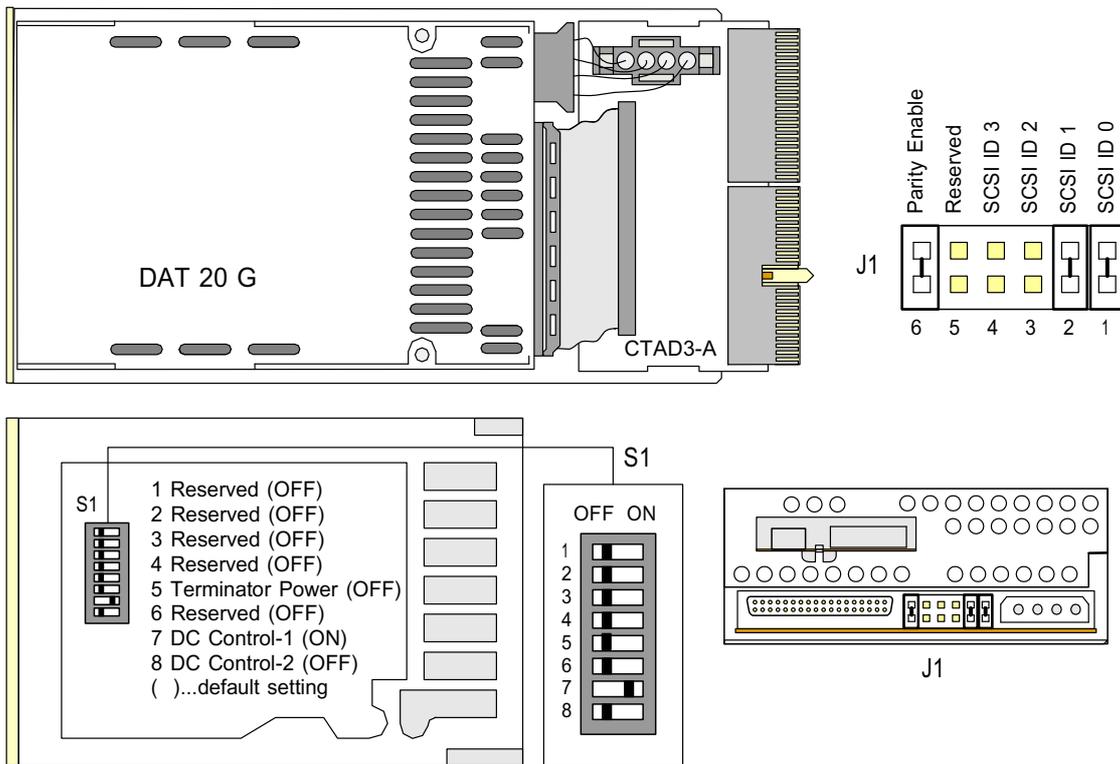| Settings for SCSI ID jumpers (W1):			
Meaning	Jumper		Comment
Connection of drive to SCSI signal TERM PWR	W1: 1-2	Jumper in, Selected	Drive is connected to SCSI signal TERM PWR
		No jumper	Drive is not connected to SCSI signal TERM PWR
SCSI address (A2, A1 and A0). Jumper sets bit to one.	W1: 7-8 (0), 5-6 (1)	Jumper in, 7-8, 5-6 Selected	(Address 3)
	W1: 3-4 (2)	No jumper	
Control of operating voltage through control cable	W1:9	Jumper in	Operating voltage is controlled through control cable
		No jumper, Selected	Operating voltage is not controlled through control cable
Settings for configuration switches (S1):			
Meaning	Switch position		Comment
Default value for compressing	S1:1	ON, Selected	Compressing is on unless it has been denied by program
		OFF	Compressing id off unless it has been allowed by program
Program control of compressing	S1:2	ON, Selected	Compressing can be switched ON/OFF by program
		OFF	Compressing cannot be switched ON/OFF by program
DDS Media Recognition system settings	S1: 3 *)	ON, Selected	The system is disabled. All DDS tapes will be treated the same, whether they possess the Media Recognition stripes or not
		OFF	System is active. Non-MRS tapes will be treated as if they are write-protected.
Special settings with default ON	S1: 4-8	ON, Selected	Default values are in use

Table 153.   Jumper settings. (cont.)

		OFF	Same special setting is in use

*) Check this jumper for proper setting.

44 DAT20G drive P01088

DAT 20 G

CTAD3-A

Parity Enable
Reserved
SCSI ID 3
SCSI ID 2
SCSI ID 1
SCSI ID 0

J1

6 5 4 3 2 1

S1

S1

1 Reserved (OFF)
2 Reserved (OFF)
3 Reserved (OFF)
4 Reserved (OFF)
5 Terminator Power (OFF)
6 Reserved (OFF)
7 DC Control-1 (ON)
8 DC Control-2 (OFF)
( )...default setting

OFF ON

1
2
3
4
5
6
7
8

J1

DN0149061

Figure 47.   Jumpers of DAT20G (Sony SDT-11000) Dat Drive

A DAT drive CTU is composed of a DAT20G (P01088) mounted on an assembly
board CTAD3-A (C100971) and connecting cables.

Standard settings, jumper group J1

Table 154.   Meanings of the jumper group (J1)

Meaning	Jumper		Note
SCSI ID 0	1 (LSB)	ON	Default setting. Address = 3
SCSI ID 1	2	ON	Default setting. Address = 3
SCSI ID 2	3	OFF	Default setting. Address = 3
SCSI ID 3	4 (MSB)	OFF	Default setting. Address = 3
Reserved	5	OFF	default setting
Parity enable	6	ON	default setting

**Standard settings, switch (S1)**

Table 155.   Meanings of the switch (S1)

Switch	Name	Meaning	State	Note
1	Reserved		OFF	default setting
2	Reserved		OFF	default setting
3	Reserved		OFF	default setting
4	Reserved		OFF	default setting
5	Termination power	ON = Provided OFF = Not provided	OFF	Default setting. Factory setting different.
6	Reserved		OFF	default setting
7	DC Control-1	1)OFF, 2)OFF, 3)ON, 4)ON	3)ON	default setting 3)
8	DC Control-2	1)OFF, 2)ON, 3)OFF, 4)ON	3)OFF	default setting 3)

1) Compression disabled at power-on. The host is allowed to control compression.

2) Compression disabled at power-on. The host is not allowed to control compression.

3) Compression enabled at power-on. The host is allowed to control compression.

4) Compression enabled at power-on. The host is not allowed to control compression.

45 DDAD C08663 /CTAD C08822 /FDAD C8821 /WDAD C08823 /WDAD-S C072589

SCSI CONNECTOR, DAT AND WINCHESTER DRIVE (DAT, WDD)

SCSI CONNECTOR, FLOPPY DISK DRIVE (FDD)
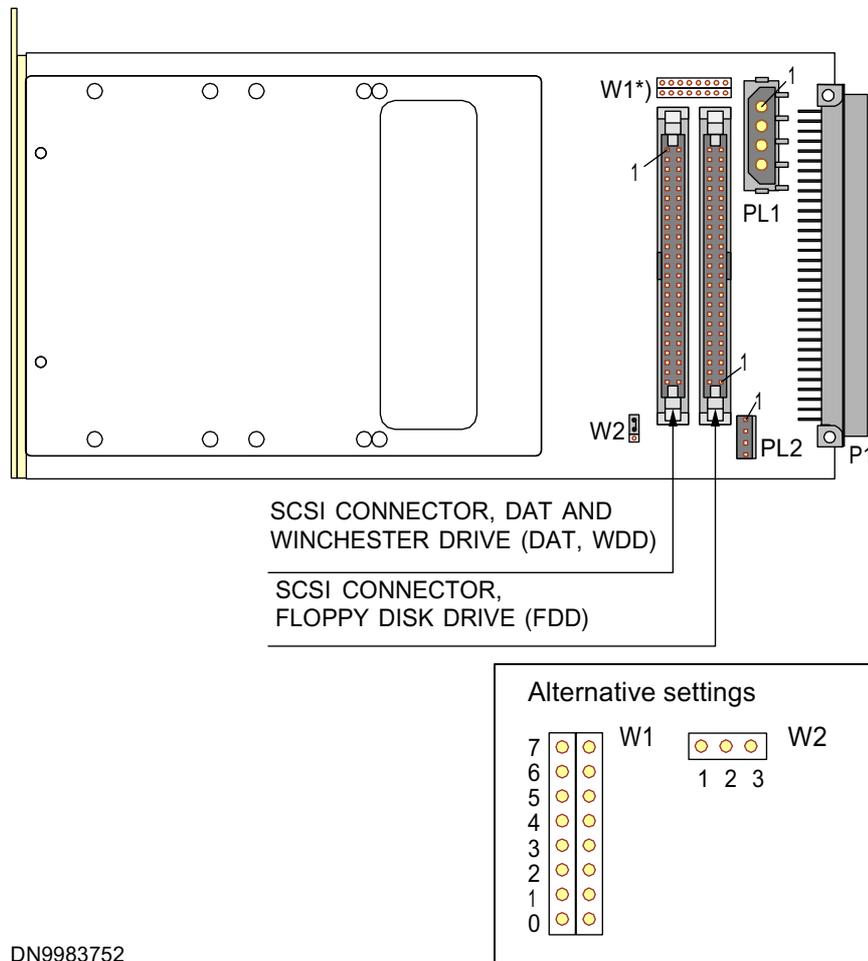
DN9983752

Figure 48.   Jumpers of plug-in unit DDAD, CTAD, FDAD and WDAD.

*) Alternative settings presented in tables below

In-position control in the case of a hard disk drive, floppy disk drive or DAT tape drive (W1, pin pairs 1, 2 and 3)

Selection criteria	Jumper	Note
DDAD/WDAD as adapter of hard disk drive, WDDC cartridge slot 00 or 02 / lower shelf	W1:0	
DDAD/FDAD as adapter of floppy disk drive, WDDC cartridge slot 00 / upper shelf	W1:2	
DDAD/CTAD as adapter of DAT tape drive, WDDC cartridge slot 00 or 02 / lower shelf	W1:3	

In-position control in the case of an MTU (Magnetic Tape Unit) (W1, pin pairs 4 and 5)

Table 156.   Selection of in-position control in the case of an MTU.

Selection criteria	Jumper	Note
First MTU (Master) on SCSI bus, connected to the rear connector of WDDC cartridge	W1: 4	The connection is made to the DDAD, CTAD, FDAD or WDAD adapter on the same SCSI bus
Second MTU (Master) on SCSI bus, connected to the first MTU on the same SCSI bus	W1: 5	The connection is made to the DDAD, CTAD, FDAD or WDAD adapter on the same SCSI bus

- If the MTU is connected to the SCSI bus by means of SCSI adapter SCAD (C 23727), the above connections are not made to the DDAD, CTAD, FDAD or WDAD adapter plug-in units which are on the same SCSI bus; instead, the in-position control connections are made to SCSI adapter SCAD (see setting instructions for SCAD).

Power supply for terminal resistor unit when a hard disk drive is involved (W2 / DDAD, WDAD)

Table 157.   Selection of power supply for terminal resistor unit when a hard disk drive is involved.

Selection criteria	Jumper	Note
Diode in hard disk drive in series with power supply	W2: 1-2	Default setting
No diode in hard disk drive in series with power supply	W2: 2-3	

Power supply for terminal resistor unit when a floppy disk drive isinvolved (W2 / DDAD or FDAD)

Table 158.   Selection of power supply for terminal resistor unit when a floppy disk drive is involved.

Selection criteria	Jumper	Note
Diode in floppy disk drive in series with power supply	W2: 1-2	Default setting
No diode in floppy disk drive in series with power supply	W2: 2-3	

Power supply for terminal resistor unit when a DAT tape drive is involved (W2 / DDAD or CTAD)
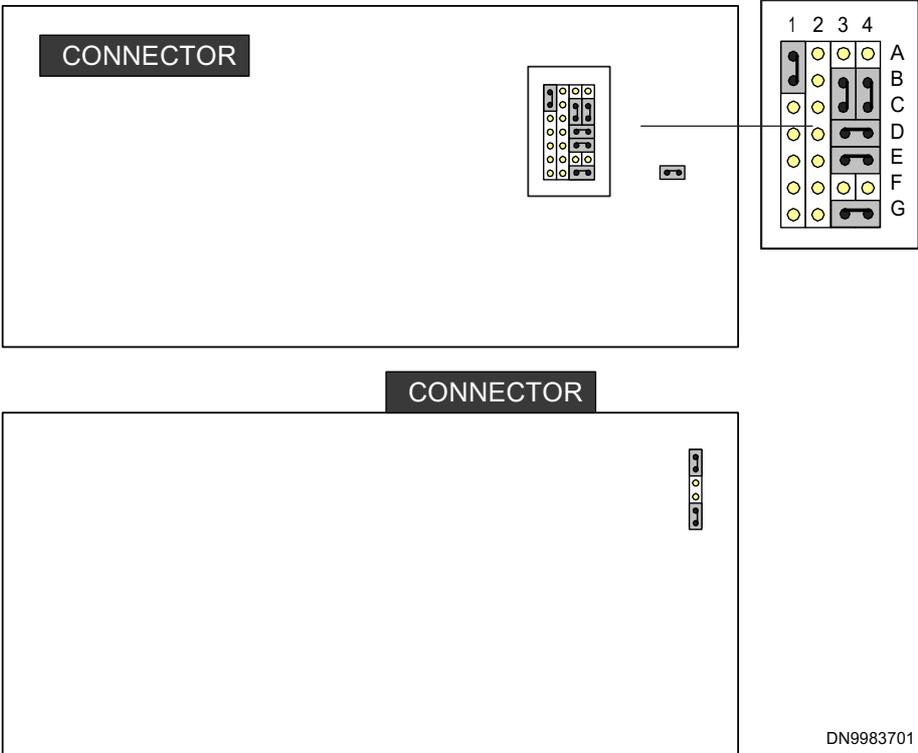
Table 159.   Selection of power supply for terminal resistor unit when a DAT tape drive is involved.

Selection criteria	Jumper	Note
Diode in DAT tape drive in series with power supply	W2: 1-2	Default setting
No diode in DAT tape drive in series with power supply	W2: 2-3	

NOKIA

46 FDD-S P01043

Jumpers of Teac FD-235 HF

Figure 49.   Jumpers of FDD-S Teac FD-235 HF.
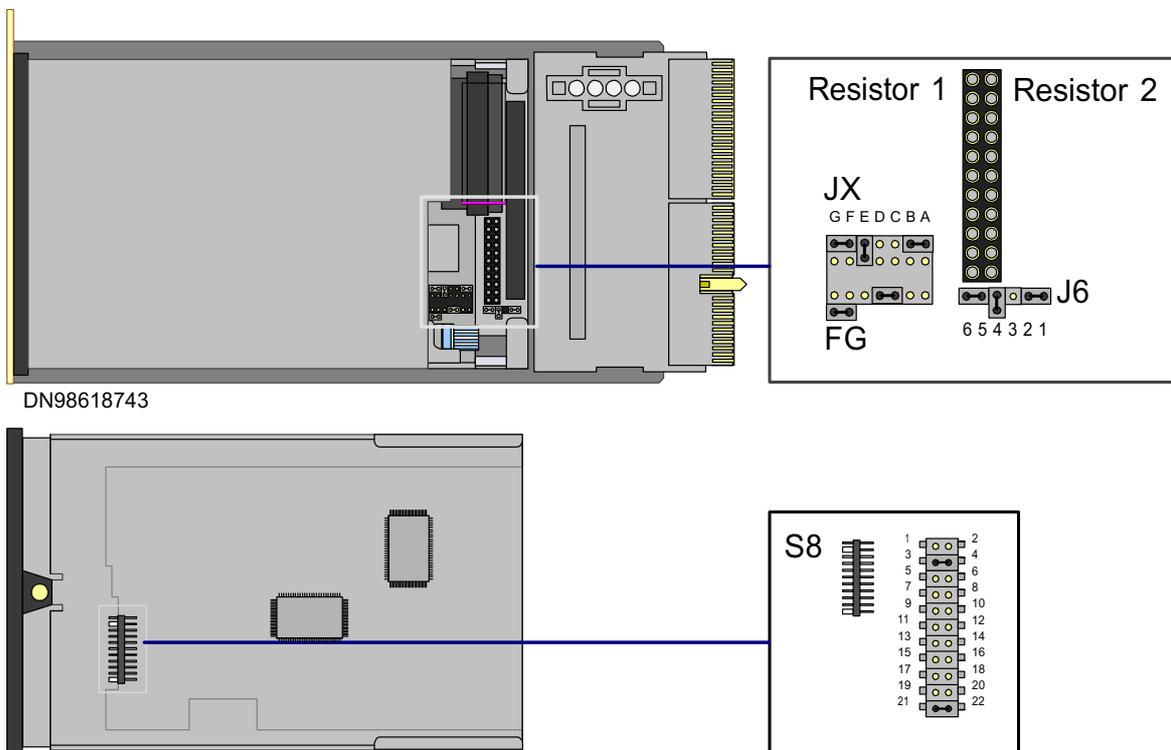
47 FDD-S drive P01043

DN98618743

Figure 50.   Jumpers of FDD-S Teac FD-235 HS-900

A floppy disk drive FDU is composed of a FDD-S (P1043) mounted on an assembly board FDAD-A (C8969) and connecting cables.

Remove the resistor networks if installed (Resistors 1 and 2).

Standard settings

Table 160.   Meanings of jumper groups FG, J6, JX, and S8

Jumper Group	Meaning	Jumper		Note
FG		1-2	ON	Jumper connects signal ground to case
J6	SCSI address	1-2	ON	Address = 2. Default.
		3-4	OFF	Address = 2. Default.
		5-6	ON	Address = 2. Default.
JX	Definitions for when led signal light is on	F3-G3	OFF	Led is on if the drive has been selected. Default.
		C3-D3	ON	Reserved for Teac. Default.
		A1-B1	ON	Default.
		D1-D2	ON	Default.
		F1-G1	ON	*) Default.
		G1-G2	OFF	*)
S8	Selection mode for read/write density. Also JX affects selection.	19-20 HDS	OFF	*) Default. (Density is selected by program)
	Parity check when receiving. (Parity is always in transmission.)	21-22 PAR	ON	Drive checks parity of bytes received. Default.
		Other		Reserved for Teac
		1-2 J,	OFF	Default.
		3-4 H,	ON	Default.
		5-6 G,	OFF	Default.
		7-8 J1,	OFF	Default.
		9-10 H1,	OFF	Default.

Table 160.   Meanings of jumper groups FG, J6, JX, and S8 (cont.)

Jumper Group	Meaning	Jumper		Note
		11-12 G1,	OFF	Default.
		13-14 H2,	OFF	Default.
		15-16 G2,	OFF	Default.
		17-18 EJC	OFF	Default.

*) See alternative settings.

Alternative settings

Selection of the read/write density (jumper group JX pins G1-G2 and F1-G1).

Table 161.   Meanings of jumper group JX pins G1-G2 and F1-G1

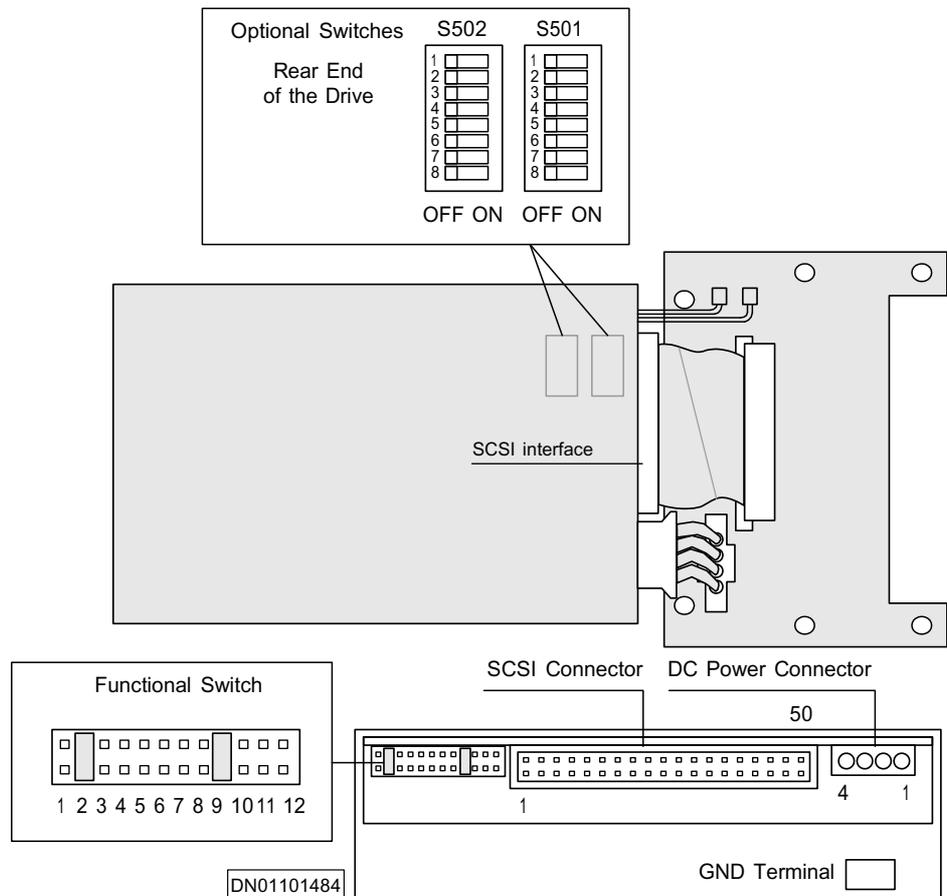| Jumper Group	Meaning	Jumper		Note
JX	Read/write density (also see HDS of S8)	F1-G1	ON	No jumper in HDS (S8: 19-20) (Density is selected by program). Default.
JX	Read/write density (also see HDS of S8)	G1-G2	ON	Jumper in HDS (S8: 19-20)

48 MO91 drive P01090

Figure 51.   Jumpers of MO91 (Sony SMO-F561)

A magneto-optical unit FDU composed of the MO91 (P01090) mounted on an adapter board ODAD-A (C100640) or ODPU-A Optical Device Plug-in Unit (C101810).

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Standard settings

Table 162.   Standard jumper settings of the MO91 (Functional Switch)

Jumper	Meaning	Default
1	SCSI ID2. Address = 2. Default.	OFF
2	SCSI ID1. Address = 2. Default.	ON
3	SCSI ID0. Address = 2. Default.	OFF
4	Disables SCSI parity checking. Default.	OFF
5	Disables write back caching. Default.	OFF
6	Disables auto spin-up. Default.	OFF
7	Forces verify for write command. Default.	OFF
8	Disables manual eject operation. Default.	OFF
9	Enables Ultra SCSI. Default.	ON
10	Device type. Default.	OFF
11	Enables termination. Default.	OFF
12	Terminator power. Default.	OFF

Table 163.   Optional Dip Switch Assignments of the MO91

Optional Switch	Switch number	Description	Default
S501	1	Reserved for internal use. Do not turn on.	OFF
	2	Reserved for internal use. Do not turn on.	OFF
	3	Disables Command Eject.	OFF
	4	Reserved for internal use. Do not turn on.	OFF
	5	Enable Library I/F Mode. Mode will be valid.	OFF
	6	Reserved for internal use. Do not turn on.	OFF
	7	Disables Write Cache.	OFF

Table 163.   Optional Dip Switch Assignments of the MO91 (cont.)

Optional Switch	Switch number	Description	Default
	8	Disables Auto Spin-up upon cartridge loading.	OFF
S502	1	Reserved for internal use. Do not turn on.	OFF
	2	Reserved for internal use. Do not turn on.	OFF
	3	Reserved for internal use. Do not turn on.	OFF
	4	Reserved for internal use. Do not turn on.	OFF
	5	Disables SCAM selection.	OFF
	6	Reserved for internal use. Do not turn on.	OFF
	7	Enables Ultra SCSI.	OFF
	8	Enables Write Cache for Write and Verify Command.	OFF

49 WD3C500 P01046

DN9983682
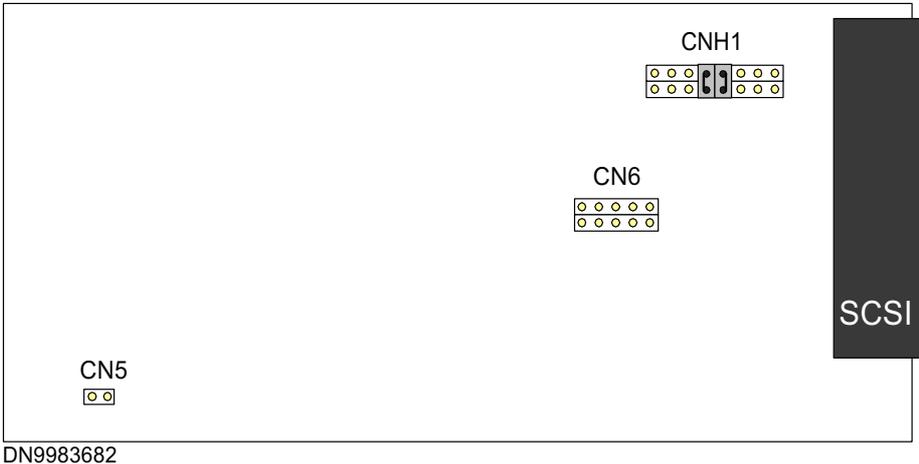
Figure 52. Jumper pins of WD3C500 Fujitsu M1603SA part number CA01310-B872000N.

Terminating resistor must be removed.
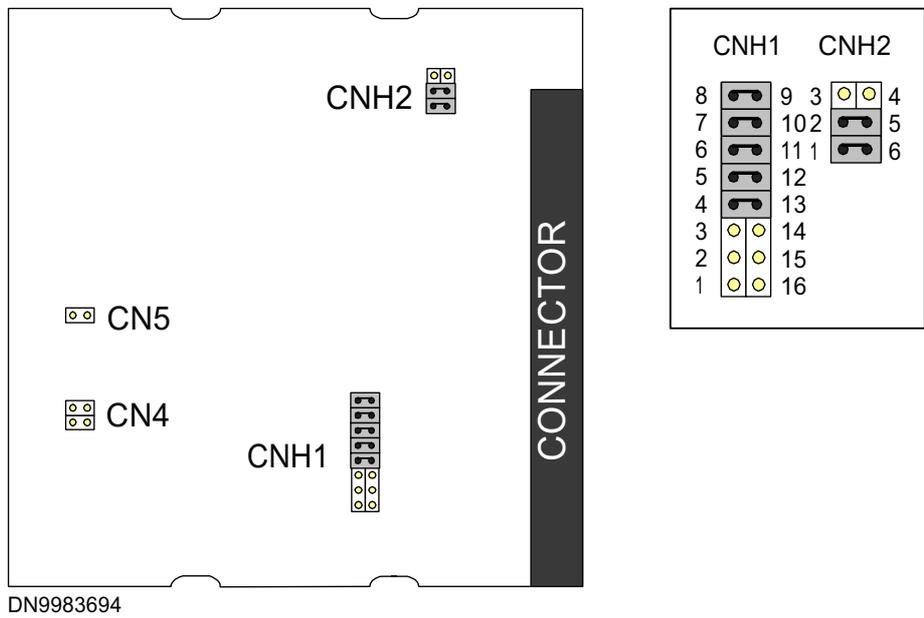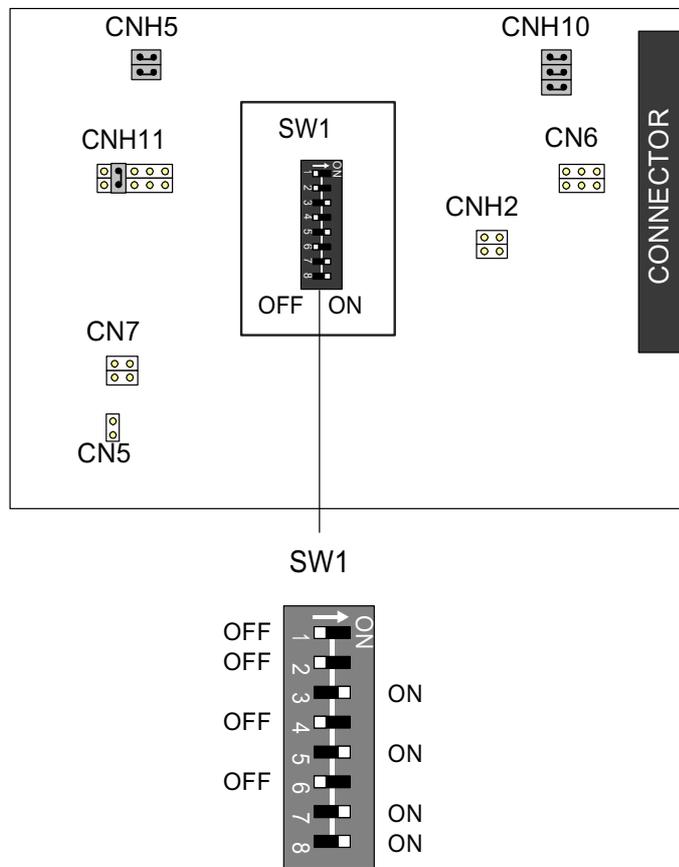
50 WD3C500 A03

Terminating resistor must be removed.

DN9983694

Figure 53. Jumper pins of WD3C500 A03 Fujitsu M2684SA.

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51 WD3C1G P01057

Jumpers of Fujitsu M2694ESA
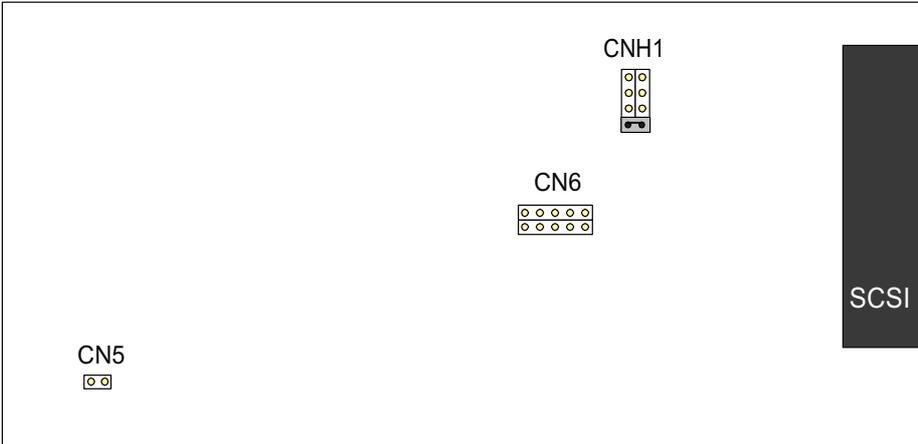
The terminating resistor must be removed.

DN9983631

Figure 54.   Jumpers of WD3C1G Fujitsu M2694ESA.

52 WD3C1G P01057

Jumpers of Fujitsu M1606SA, Part Number CA01310-B161

DN9983616

Figure 55.   Jumpers of WD3C1G Fujitsu M1606SA part number CA01310-B161.

The terminating resistor must be removed.

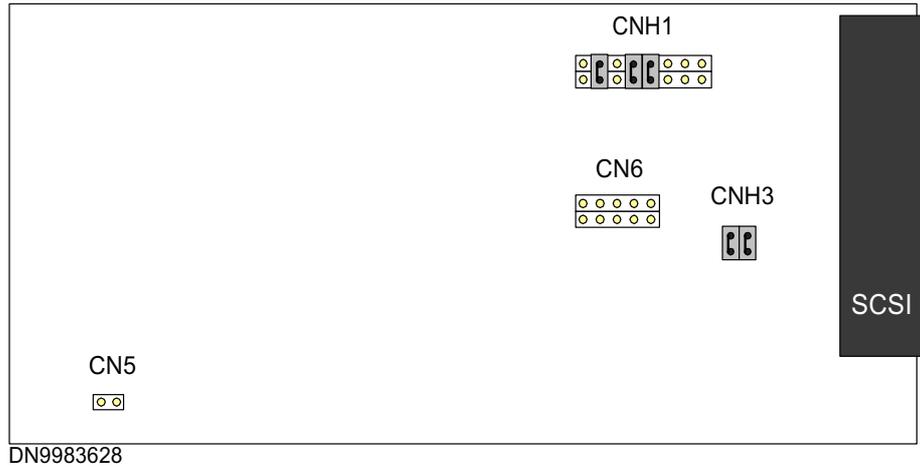**Jumpers of Fujitsu M1606SAU, Part Number CA01310-B873000N**

DN9983628

Figure 56.   Jumpers of WD3C1G Fujitsu M1606SA part number CA01310-B873000N.

The terminating resistor must be removed.

53 **WD3C4G P01073**

Jumpers of Fujitsu M2954 SYU
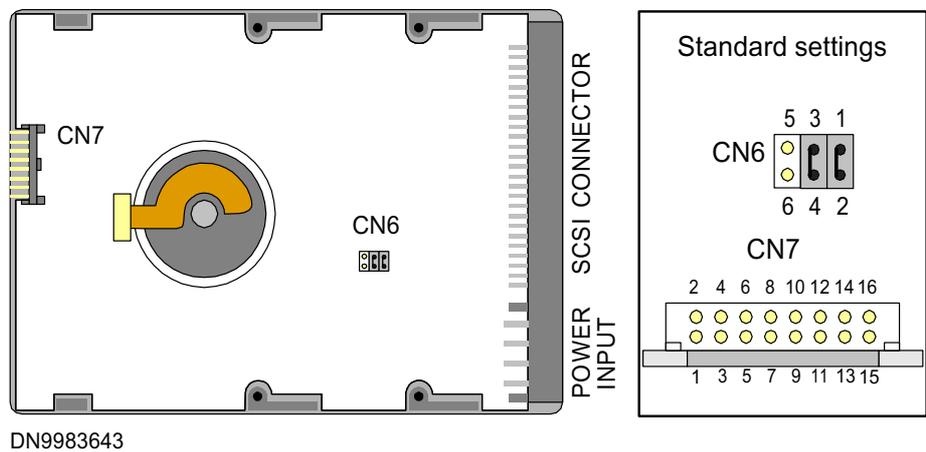

DN9983643

Figure 57.   Jumpers of WD3C4G Fujitsu M2954 SYU.

Standard settings of WD3C4G

Table 164.   Standard settings of WD3C4G.

Jumper block	Jumper	Description
CN6	1-2 jumper in 3-4 jumper in 5-6 jumper out	Spin-up immediately after power on, default. SCSI bus parity check abled, default. No self diagnostics, default.
CN7	1-2 jumper out 3-4 jumper out 5-6 jumper out	SCSI address (A0, A1, A2) is set to 0.

Table 164.   Standard settings of WD3C4G. (cont.)

Jumper block	Jumper	Description
CN7	7-8 jumper out	Sync signal, not used.
CN7	9-10 jumper out	Reset signal, not used.
CN7	11-12 jumper out	Write protection, no protection.
CN7	13-14 jumper out	Terminating resistor is disabled.
CN7	15-16 jumper out	Remote LED, signal output, not used.

54 WDW4 P01076
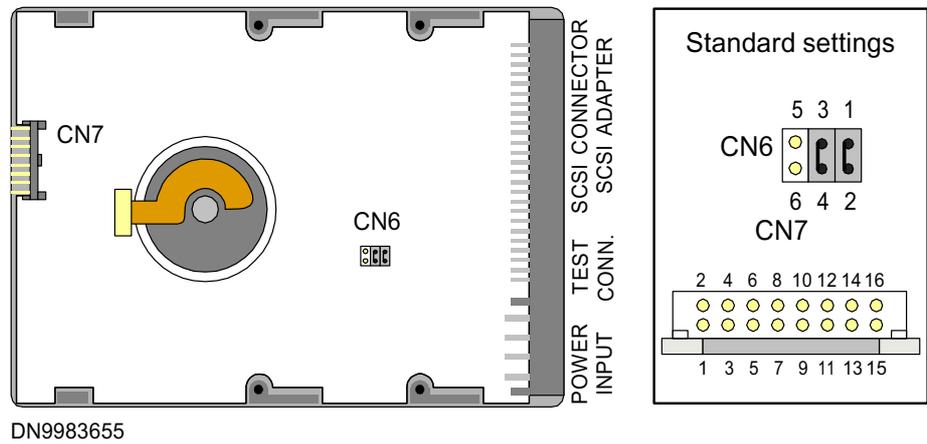
DN9983655

Figure 58.   Jumpers of WDW4 (Fujitsu MAB3045SP). The cooling profile is not shown.

A hard disk drive WDU (HDU) is composed of a WDW4 (P01076) mounted on an adapter board HDAD2-A (C71770) and connecting cables.

Standard settings of WDW4

Table 165.   Jumper settings for WDW4

Jumper group	Jumper	Meaning
CN6	1-2 OFF	Terminal power supply is on.
	3-4 ON	Spin-up immediately after power on. Default.
Terminal setting	5-6 OFF	Terminating resistor is disabled. Default.

Table 165.   Jumper settings for WDW4 (cont.)

Jumper group	Jumper	Meaning
CN7	1-2 OFF	SCSI address (A0) = 0. Default.
	3-4 OFF	SCSI address (A0) = 0. Default.
Terminal setting	5-6 OFF	SCSI address (A0) = 0. Default.
	7-8 OFF	SCSI address (A0) = 0. Default..
	pin 9, no jumper	Ground. Default.
	pin 10, no jumper	Spindle synchronization signal, not used. Default.
	pin 11, no jumper	Not connected. Default.
	pin 12, no jumper	IDD reset signal, not used. Default.
	13-14 OFF	Write protection, no protection. Default.
	15-16 OFF	Remote LED, signal output, not used. Default.

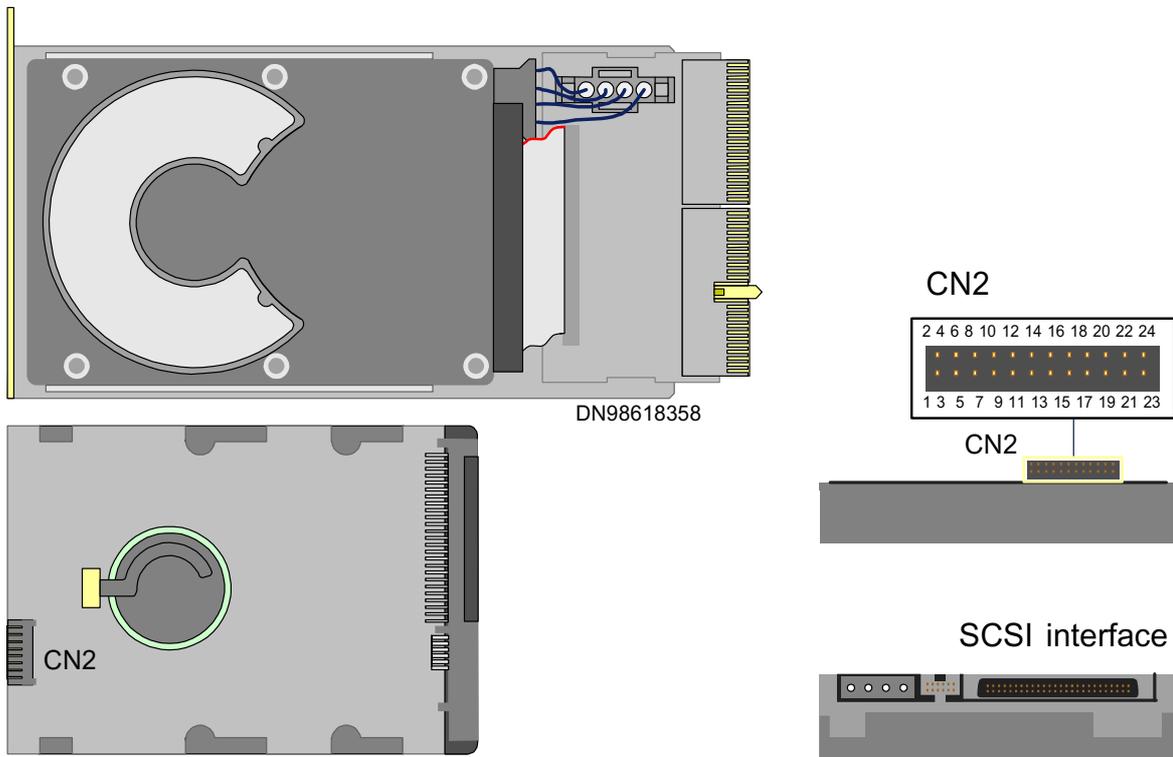# 55 WDW9-S P01084

DN98618358

Figure 59.   Jumpers of WDW9-S (Fujitsu MAE3091LP). The cooling profile is not shown.

A hard disk drive WDU (HDU) is composed of a WDW9-S (P01084) mounted on an adapter board HDAD2-A (C71770) and connecting cables.

Standard settings of WDW9-S (CN2)

Table 166. Terminal settings, CN2 (WDW9S)

| Jumper group	Jumper	Meaning
CN2	1-2OFF	SCSI address (A0) = 0. Default.
Terminal setting	3-4 OFF	SCSI address (A0) = 0. Default
	5-6 OFF	SCSI address (A0) = 0. Default.
	7-8 OFF	SCSI address (A0) = 0. Default.
	9-10 OFF	Write protection, no protection. Default.
	11-12 ON	Spin-up immediately after power on. Default.
	13-14, OFF	SCSI upper data byte termination. Default.
	15-16, OFF	Terminating resistor is disabled. Default.
	17-18, OFF	Spindle synchronization signal. Do not connect.
	19-20, OFF	IDD reset signal. Do not connect.
	21-22 OFF	Output signal connector to external LED. Do not connect.
	23-24 OFF	Terminal power supply is off. Default.

56 WDW18 P01087
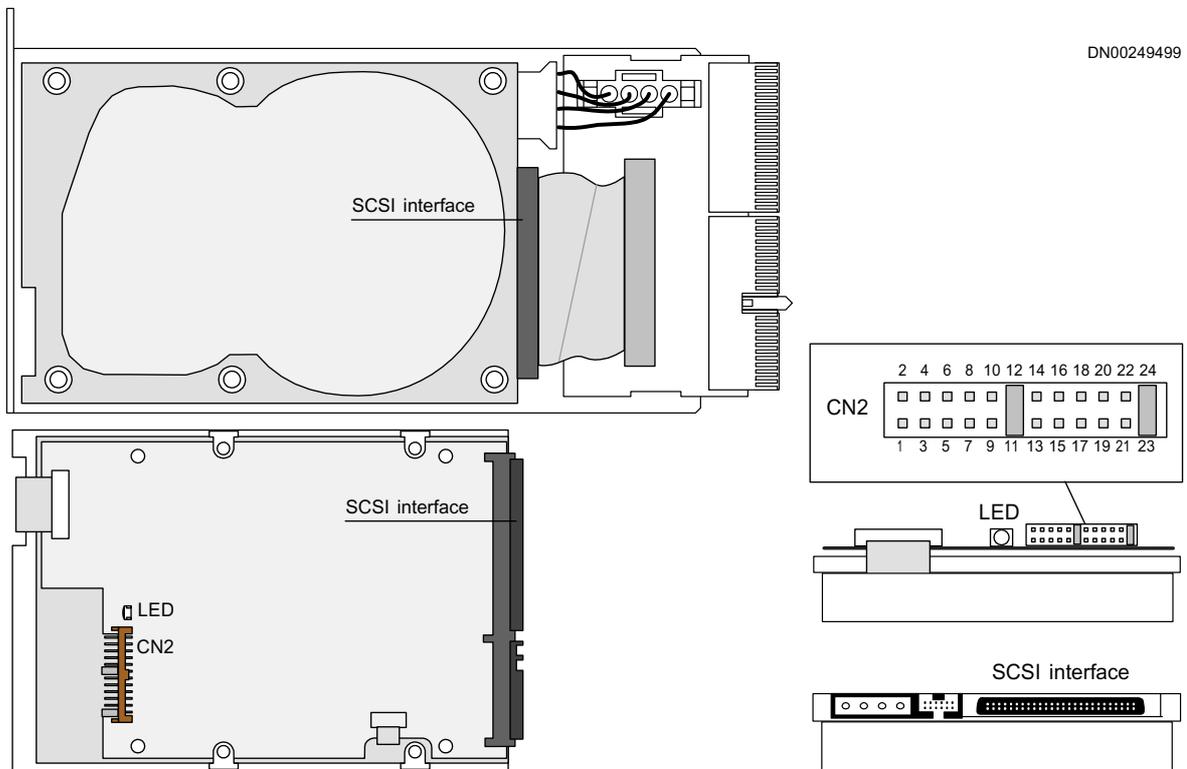
Figure 60.   Jumpers of WDW18 (Fujitsu MAH3182MP). The cooling profile is not shown.

A hard disk drive WDU (HDU) is composed of a WDW18 (P01087) mounted on an adapter board HDAD2-A (C71770) and connecting cables.

Standard settings of WDW18 (CN2)

Table 167.   Terminal settings, CN2 (WDW18)

Jumper group	Jumper	Meaning
CN2	1-2, OFF	(A0) SCSI address = 0. Default.
Terminal setting	3-4, OFF	(A1) SCSI address = 0. Default.
	5-6, OFF	(A2) SCSI address = 0. Default.
	7-8, OFF	(A3) SCSI address = 0. Default.
	9-10, OFF	Write protection, no protection. Default.
	11-12, ON	Spin-up immediately after power on. Default.
	13-14, OFF	SCSI upper data byte termination. Default.
	15-16, OFF	Terminating resistor is disabled. Default.
	17-18, OFF	Spindle synchronization signal. Do not connect.
	19-20, OFF	IDD reset signal. Do not connect.
	21-22, OFF	Output signal connector to external LED. Do not connect.
	23-24, OFF	Terminal power supply is off. Default. 1)

1) The default setting is OFF, although in the figure above the jumper is set to ON. Both settings work, however.
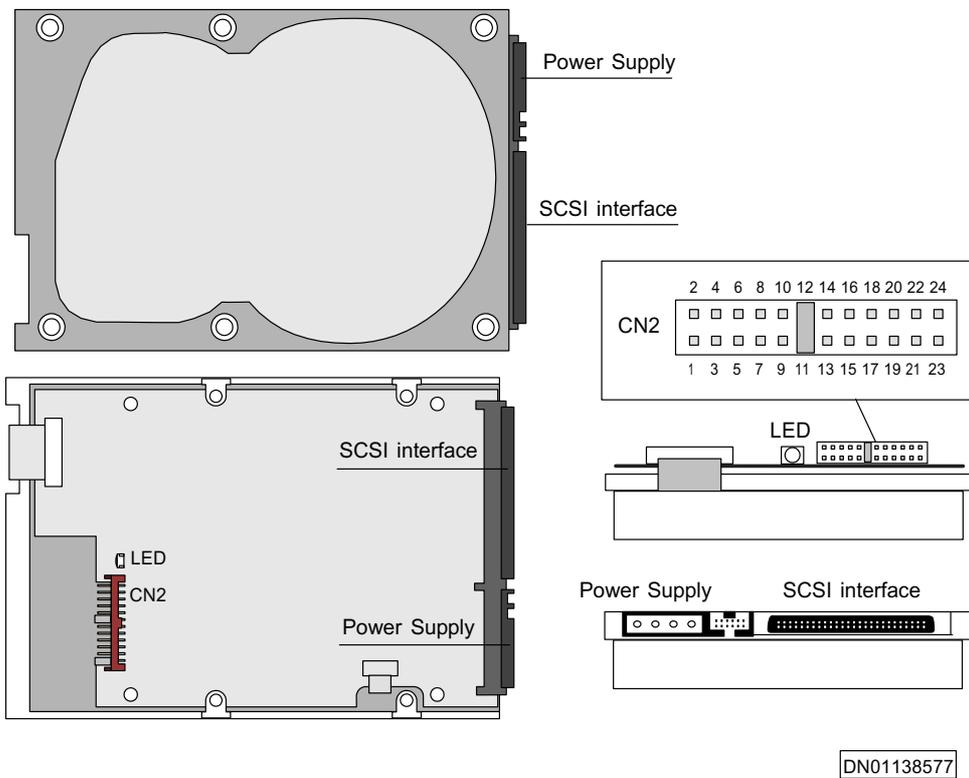
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57 WDW18-S P01091, WDW36 P01096

Figure 61.   Jumpers of WDW18-S (Fujitsu MAN3184MP) and WDW36 (Fujitsu MAP3367NP). The cooling profile is not shown.

A hard disk drive WDU (HDU) is composed of the WDW18-S (P01091) or WDW36 (P01096) mounted on an adapter board HDAD2-A (C71770) or HDPU-A Hard Disk Plug-in Unit (C100720).

Standard settings of WDW18-S and WDW36 (CN2)

Table 168.   Terminal settings, CN2 (WDW18-S and WDW36)

Jumper group	Jumper	Meaning
CN2	1-2, OFF	(A0) SCSI address = 0. Default.
Terminal setting	3-4, OFF	(A1) SCSI address = 0. Default.
	5-6, OFF	(A2) SCSI address = 0. Default.
	7-8, OFF	(A3) SCSI address = 0. Default.
	9-10, OFF	Write protection, no protection. Default.
	11-12, ON	Spin-up immediately after power on. Default.
	13-14, OFF	SCSI bus width; 8/16 bit selectable. Default.
	15-16, OFF	SCSI interface operation mode (SE/LVD). Default.
	17-18, OFF	Spindle synchronization signal. Do not connect.
	19-20, OFF	IDD reset signal. Do not connect.
	21-22, OFF	Output signal connector to external LED. Do not connect.
	23-24, OFF	Terminal power supply is off. Default.

58 WDW73 P01098

DN0493089
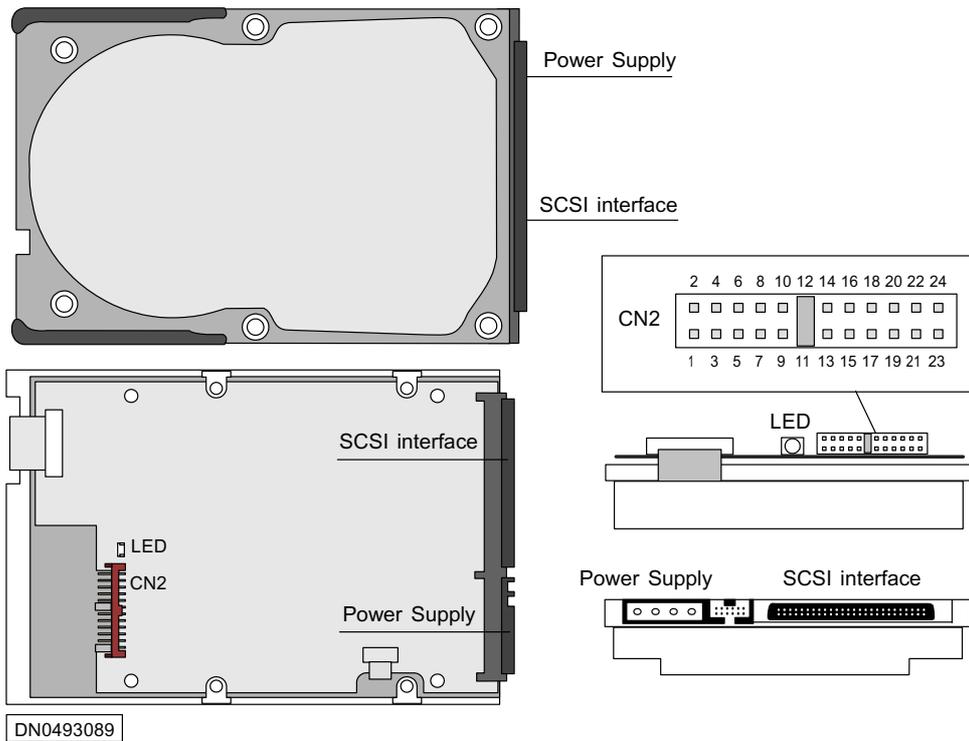
The cooling profile is not shown in the figure.

Figure 62.   Jumpers of WDW73

A hard disk drive WDU (HDU) is composed of the WDW73 mounted on an adapter board HDAD2-A (C71770) or HDPU-A Hard Disk Plug-in Unit (C100720).

Standard settings of WDW73 (CN2)

Table 169.   Terminal settings, CN2 (WDW73)

Jumper group	Jumper	Meaning
CN2	1-2, OFF	(A0) SCSI address = 0. Default.
Terminal setting	3-4, OFF	(A1) SCSI address = 0. Default.
	5-6, OFF	(A2) SCSI address = 0. Default.
	7-8, OFF	(A3) SCSI address = 0. Default.
	9-10, OFF	Write protection, no protection. Default.
	11-12, ON	Spin-up immediately after power on. Default.
	13-14, OFF	SCSI bus width; 8/16 bit selectable. Default.
	15-16, OFF	SCSI interface operation mode (SE/LVD). Default.
	17-18, OFF	Spindle synchronization signal. Do not connect.
	19-20, OFF	IDD reset signal. Do not connect.
	21-22, OFF	Output signal connector to external LED. Do not connect.
	23-24, OFF	Terminal power supply is off. Default.

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