



Device Description

NXHX 50-ETM

netX 50 Software Development Board

Language: English

1 Block Diagram

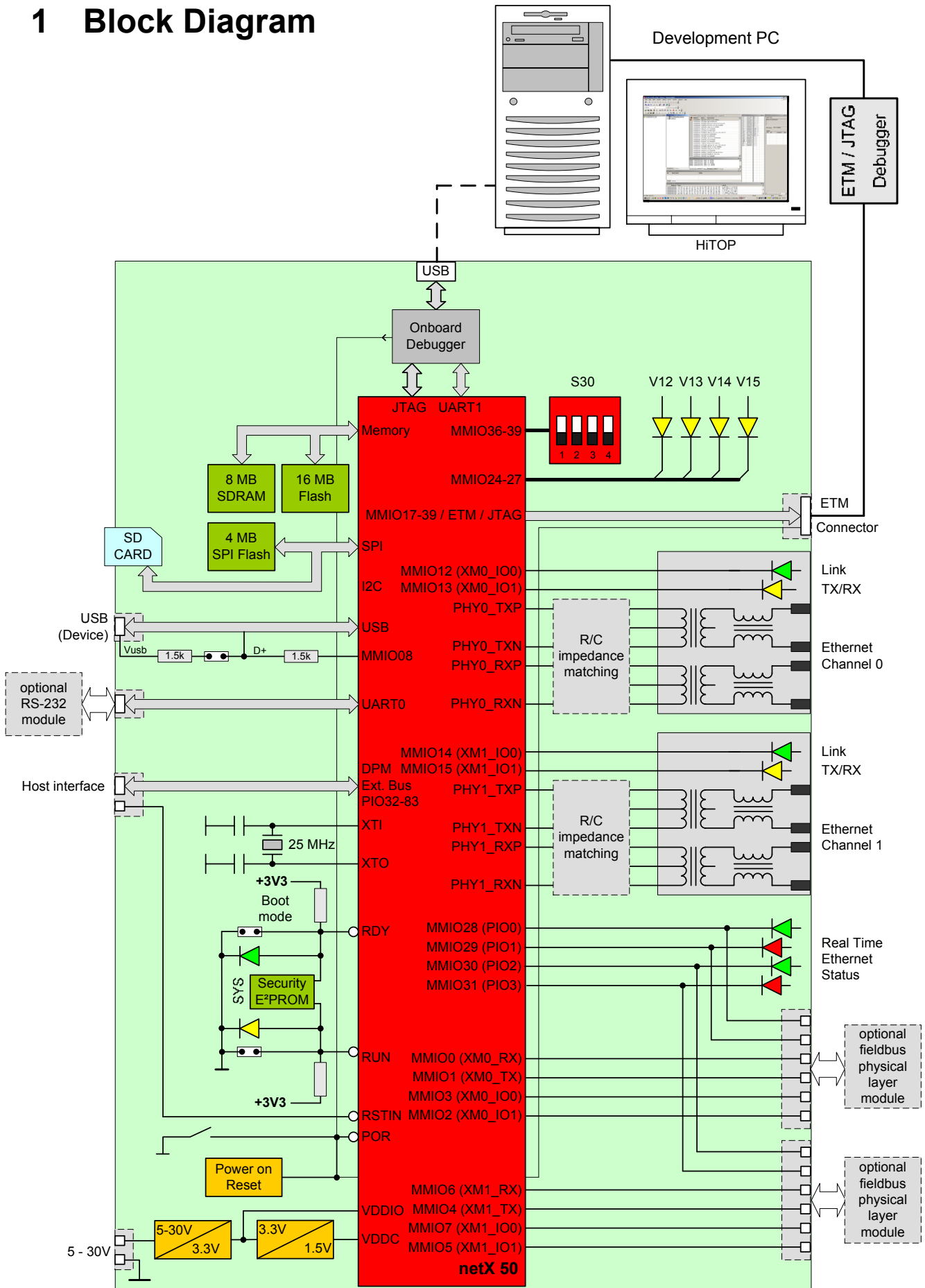


Figure 1: Block diagram NXHX50-ETM, Rev.2

2 Overview

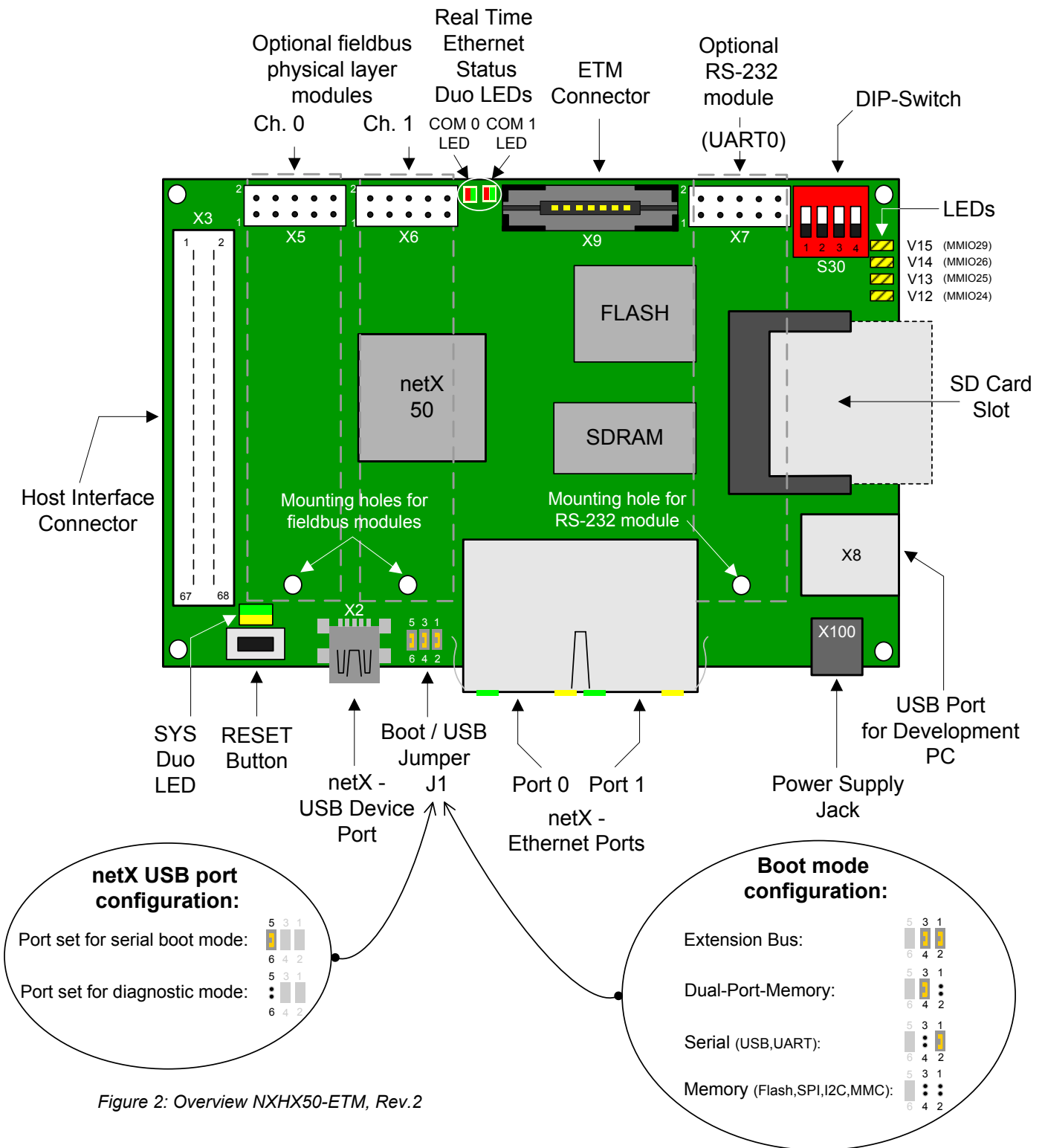


Figure 2: Overview NXHX50-ETM, Rev.2

- The NXHX50-ETM can only be powered by an external power supply (5-30 V DC, use NXAC-POWER). It can **not** be powered through the USB port, of the development PC (X8)!
- When using the netX serial boot mode via the netX USB port (X5), the jumper on position 5-6 of J1 must be set!

2.1 Using external debuggers

Instead of using the onboard debugger of the NXHX 50-ETM along with the HiTOP software, an external debugger with either ETM or JTAG interface can be connected to the NXHX 50-ETM. If an ETM debugger is used, simply connect the debugger to the ETM connector (X9) of the NXHX 50-ETM. If a JTAG debugger is used, connect the ETM-to-JTAG adapter (NXAC-JTAG-ETM) that came with your NXHX 50-ETM board to the ETM connector and then connect your JTAG debugger to the 20 pin shrouded header as shown below.

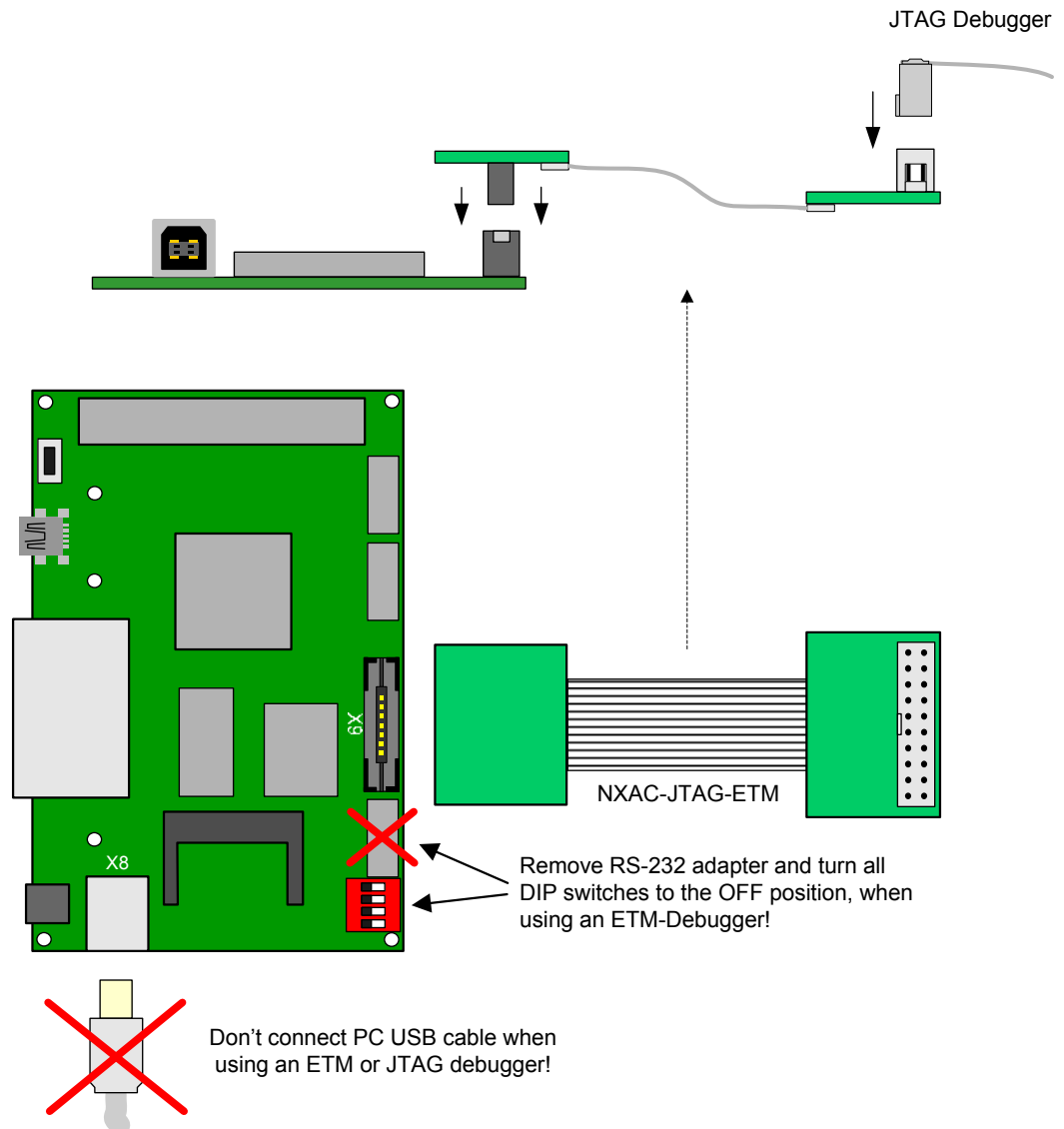
NOTICE

Hardware Damage!

Only one debugger, **either** the onboard unit **or** an external debugger may be active at a time, otherwise the debugger signals may drive against each other, which may result in damage of the onboard debugger and / or the external debugger!

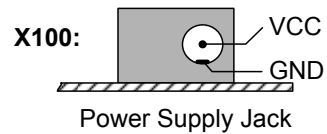
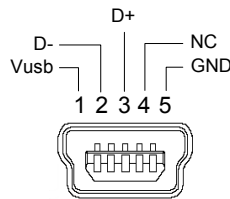
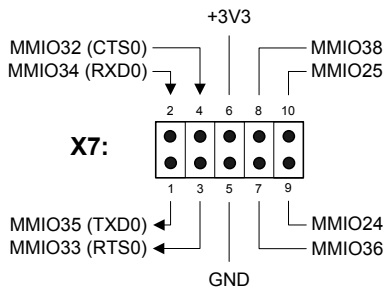
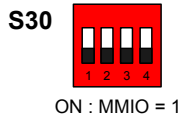
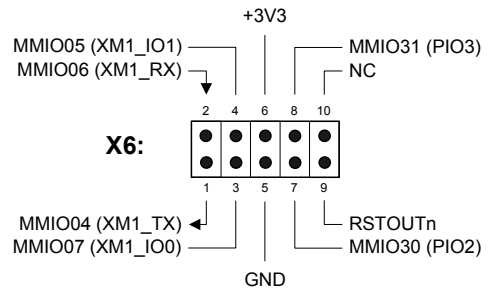
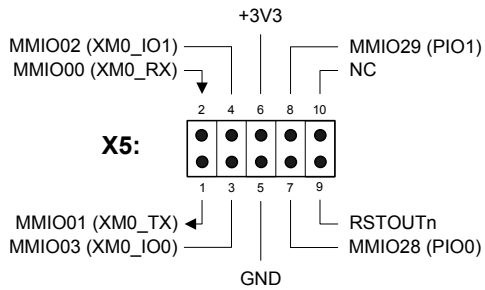
When using an external debugger, the USB port for the Development PC (X8) must not be connected! Further, any adapter board (e.g. RS-232) must be removed from X7 and all switches of S30 should be set to OFF position!

When using the onboard debugger, an external debugger must not be connected to the ETM connector (X9)!



3 Connectors / Switches

MMIO24-27 and 30-39 are shared with X9 (ETM)!



Host interface connector, X3:

Pin	DPM	Ext. Bus	Prog. I/O	Pin	DPM	Ext. Bus	Prog. I/O
1	+3,3V	+3,3V	+3,3V	35	DPM_A14	EXT_A14	PIO54
2	GND	GND	GND	36	DPM_A13	EXT_A13	PIO48
3	CLKOUT	CLKOUT	CLKOUT	37	DPM_A12	EXT_A12	PIO49
4	TCLK	TCLK	TCLK	38	DPM_A11	EXT_A11	PIO50
5	GND	GND	GND	39	DPM_A10	EXT_A10	PIO53
6	RSTOUTn	RSTOUTn	RSTOUTn	40	DPM_A9	EXT_A9	PIO56
7	RSTINn	RSTINn	RSTINn	41	DPM_A8	EXT_A8	PIO57
8	PIO85	PIO85	PIO85	42	DPM_A7	EXT_A7	PIO60
9	PIO40	PIO40	PIO40	43	DPM_A6	EXT_A6	PIO61
10	PIO36	PIO36	PIO36	44	DPM_A5	EXT_A5	PIO64
11	DPM_INT	EXT_IRQ	PIO47	45	DPM_A4	EXT_A4	PIO65
12	DPM_RDY	EXT_RDY	PIO46	46	DPM_A3	EXT_A3	PIO66
13	GND	GND	GND	47	DPM_A2	EXT_A2	PIO69
14	DPM_RDn	EXT_RDn	PIO52	48	DPM_A1 / DPM_BE2n	EXT_A1	PIO70
15	DPM_WRHn / DPM_BE3n	EXT_WRHn	PIO44	49	DPM_A0 / DPM_BE0n	EXT_A0	PIO73
16	DPM_WRLn	EXT_WRLn	PIO45	50	GND	GND	GND
17	WDGACT / DPM_D19	WDGACT	WDGACT	51	DPM_D15	EXT_D15	PIO41
18	DPM_WIFn / DPM_D17	EXT_ALE	PIO35	52	DPM_D14	EXT_D14	PIO42
19	DPM_BHEn / DPM_BE1n	EXT_BHEn	PIO43	53	DPM_D13	EXT_D13	PIO37
20	GND	GND	GND	54	DPM_D12	EXT_D12	PIO38
21	DPM_D30 / SEL_A18	EXT_CS3n	PIO84	55	DPM_D11	EXT_D11	PIO39
22	DPM_D28 / SEL_A16	EXT_CS2n	PIO79	56	DPM_D10	EXT_D10	PIO33
23	DPM_D29 / SEL_A17	EXT_CS1n	PIO80	57	DPM_D9	EXT_D9	PIO34
24	DPM_CSn	EXT_CS0n	PIO51	58	DPM_D8	EXT_D8	PIO32
25	GND	GND	GND	59	DPM_D7	EXT_D7	PIO74
26	DPM_D27 / SEL_A15	EXT_A23	PIO72	60	DPM_D6	EXT_D6	PIO75
27	DPM_D26 / SEL_A14	EXT_A22	PIO71	61	DPM_D5	EXT_D5	PIO76
28	DPM_D25 / SEL_A13	EXT_A21	PIO68	62	DPM_D4	EXT_D4	PIO77
29	DPM_D24 / SEL_A12	EXT_A20	PIO67	63	DPM_D3	EXT_D3	PIO78
30	DPM_D23 / DPM_A19	EXT_A19	PIO63	64	DPM_D2	EXT_D2	PIO81
31	DPM_D22 / DPM_A18	EXT_A18	PIO62	65	DPM_D1	EXT_D1	PIO82
32	DPM_D21 / DPM_A17	EXT_A17	PIO59	66	DPM_D0	EXT_D0	PIO83
33	GND	GND	GND	67	+3,3V	+3,3V	+3,3V
34	DPM_A15	EXT_A15	PIO55	68	DPM_D20 / DPM_A16	EXT_A16	PIO58

Notes:

DIP switch / LED assignment:

- LEDs are active low (setting the MMIO to '0' will turn on LED)
- DIP switches are active high (switch in 'ON' position -> MMIO reads '1')
- MMIO signal mapping is a recommendation. Signals in brackets will not be available before the appropriate MMIO mapping has been programmed in the MMIO_CFG registers! (For details on MMIOs, see netX50 Technical Reference Manual and Program Reference Guide)

Switch	assigned PIO	LED	Assigned PIO
S30 - 1	MMIO36 (GPIO11)	V12	MMIO24 (GPIO27)
S30 - 2	MMIO37 (GPIO10)	V13	MMIO25 (GPIO26)
S30 - 3	MMIO38 (GPIO09)	V14	MMIO26 (GPIO25)
S30 - 4	MMIO39 (GPIO08)	V15	MMIO27 (GPIO24)

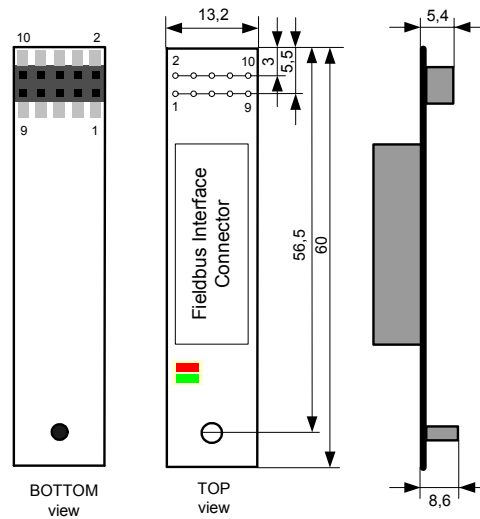
4 Accessories

4.1 Fieldbus Adapters

Fieldbus Interface with Duo Status LED (Ready / Error) for NXHX Boards.

Pin	Signal	Pin	Signal
1	XMAC TX	6	+3,3V
2	XMAC RX	7	PIO 4
3	XMAC IO 0	8	PIO 5
4	XMAC IO 1	9	RSTOUT
5	GND	10	n.c.

Connector to NXHX Board.



4.1.1 NXHX-DP

Fieldbus Interface Profibus (RS485)

Connector: D-Sub DE-9 female

Interface not isolated

Order Number: 7923.410

Pin	Signal	Pin	Signal
1	n.c.	6	n.c.
2	n.c.	7	n.c.
3	TXD/RXD-P	8	TXD/RXD-N
4	n.c.	9	n.c.
5	GND		

4.1.2 NXHX-CO

Fieldbus Interface CAN

Connector: D-Sub DE-9 male

Interface not isolated

Order Number: 7923.500

Pin	Signal	Pin	Signal
1	n.c.	6	n.c.
2	CAN-L	7	CAN-H
3	DGND	8	nc.
4	n.c.	9	n.c.
5	n.c.		

4.1.3 NXHX-DN

Fieldbus Interface DeviceNet

Connector: Combicon MSTBA 2,5

Interface not isolated

Order Number: 7923.510

Pin	Signal
1	DGND
2	CAN-L
3	n.c.
4	CAN-H
5	DN V+

4.1.4 NXHX-RS

Interface RS232

Connector: D-Sub DE-9 male

Interface not isolated

Order Number: 7923.010

Pin	Signal	Pin	Signal
1	n.c.	6	n.c.
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	n.c.
5	GND		

4.1.5 NXHX-CC

Fieldbus Interface CC-Link:

Connector: Combicon MSTBA 2,5

Interface not isolated

Order Number: 7923.740

Pin	Signal
1	DA
2	DB
3	DG
4	SLD
5	FG

4.2 NXAC-Power

Power Supply for NXHX Boards

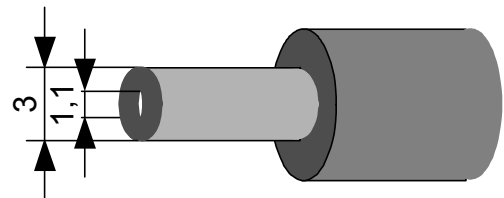
Technical Data:

Input: 100-240V ~0,4A (47-63Hz)

Output: 24V / 0,625mA

Cable: 1,8 m

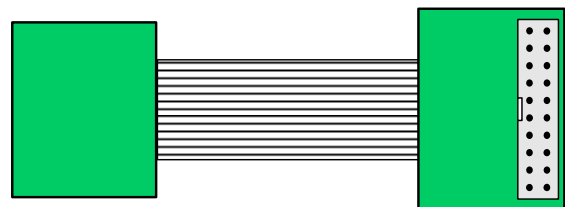
Order Number: 7930.000



4.3 NXAC-JTAG-ETM

ETM-to-JTAG adapter

Order Number: 2400.200



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