



Device Description

**NXHX 500-ETM**

**netX 500 Software Development Board**

Language: English

# 1 Block Diagram

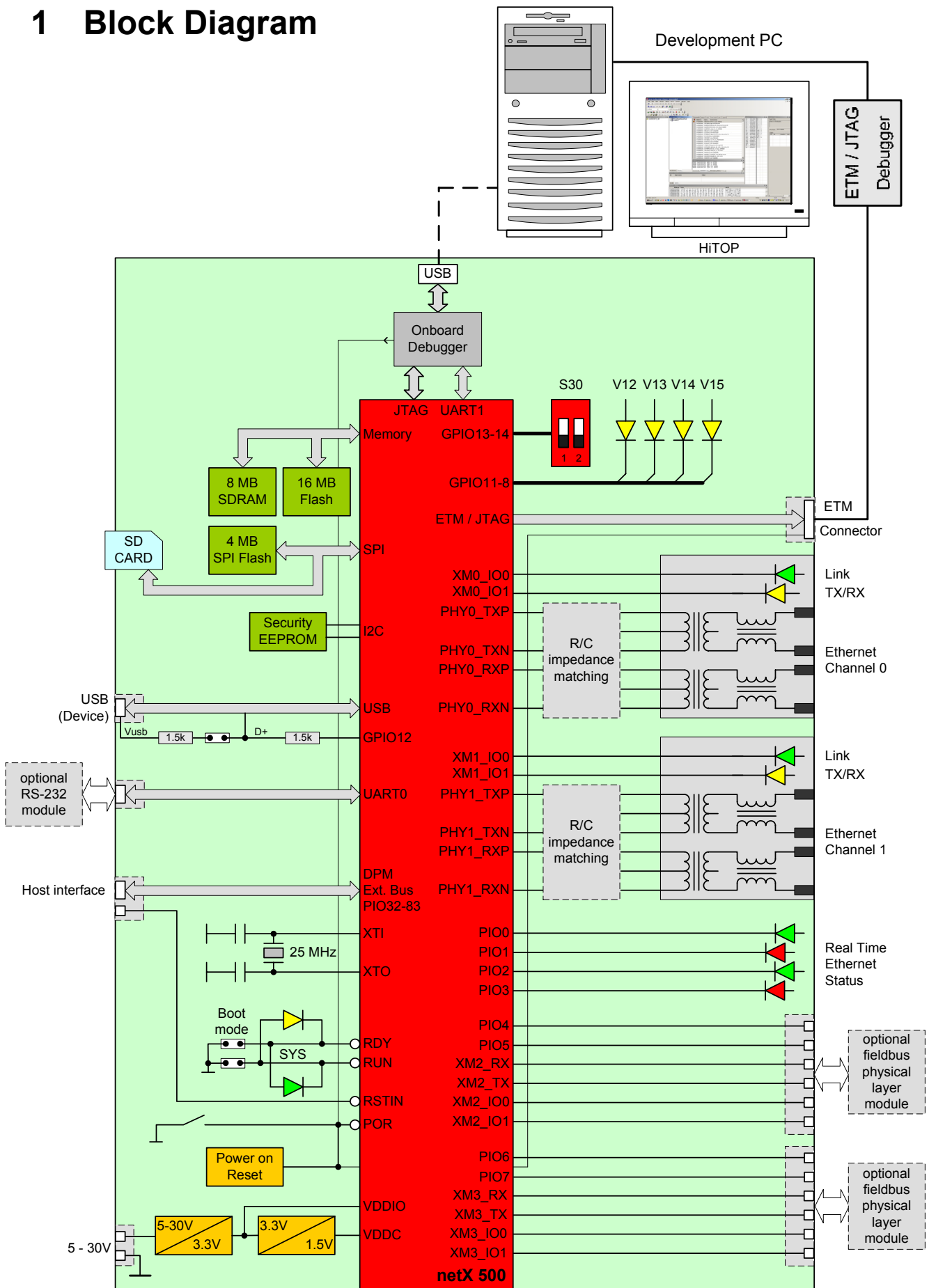


Figure 1: Block diagram NXHX500-ETM, Rev.3

## 2 Overview

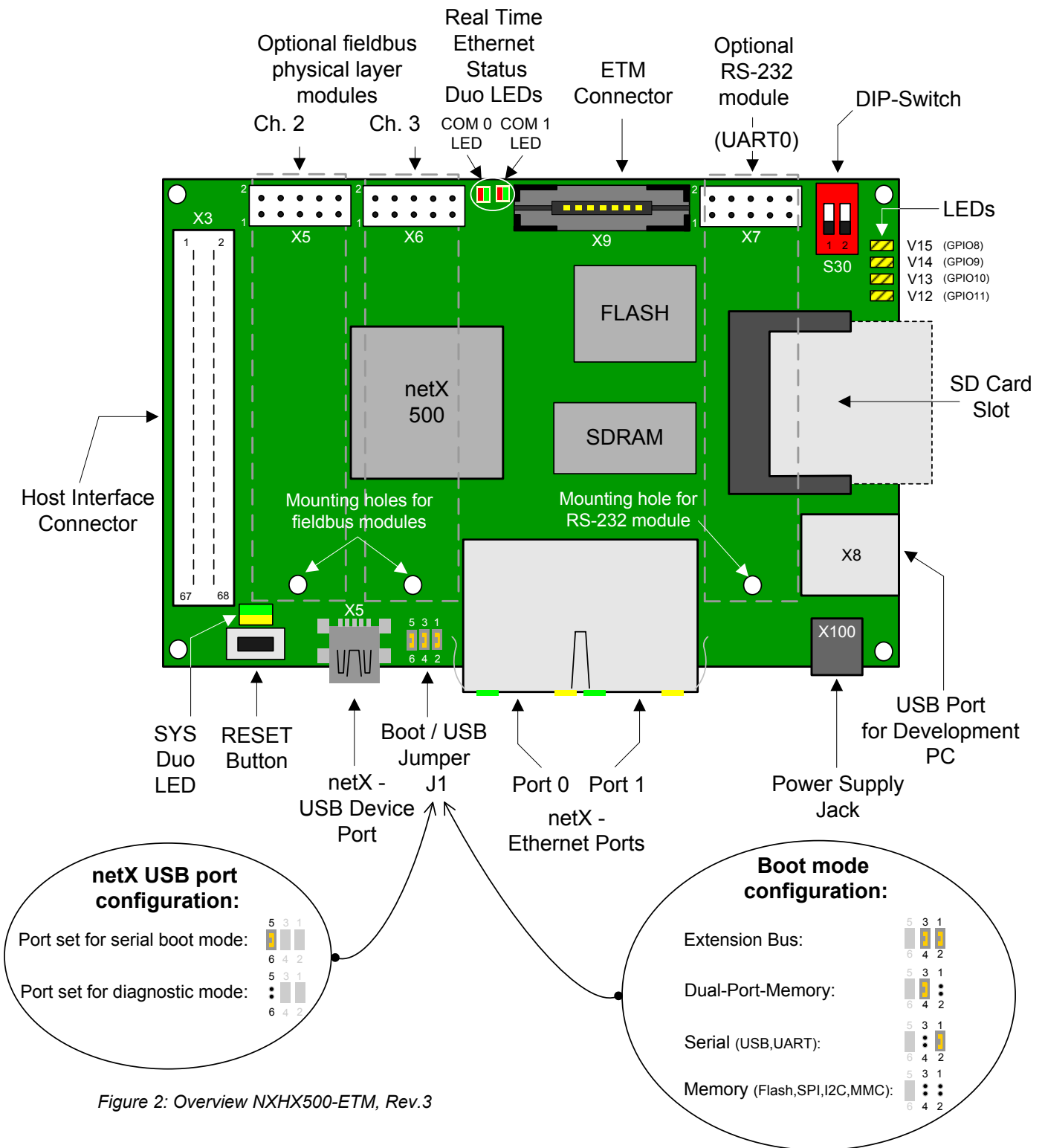


Figure 2: Overview NXHX500-ETM, Rev.3

- The NXHX500-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 500-ETM along with the HiTOP software, an external debugger with either ETM or JTAG interface can be connected to the NXHX 500-ETM. If an ETM debugger is used, simply connect the debugger to the ETM connector (X9) of the NXHX 500-ETM. If a JTAG debugger is used, connect the ETM-to-JTAG adapter (NXAC-JTAG-ETM) that came with your NXHX 500-ETM board to the ETM connector and then connect your JTAG debugger to the 20 pin shrouded header as shown below.

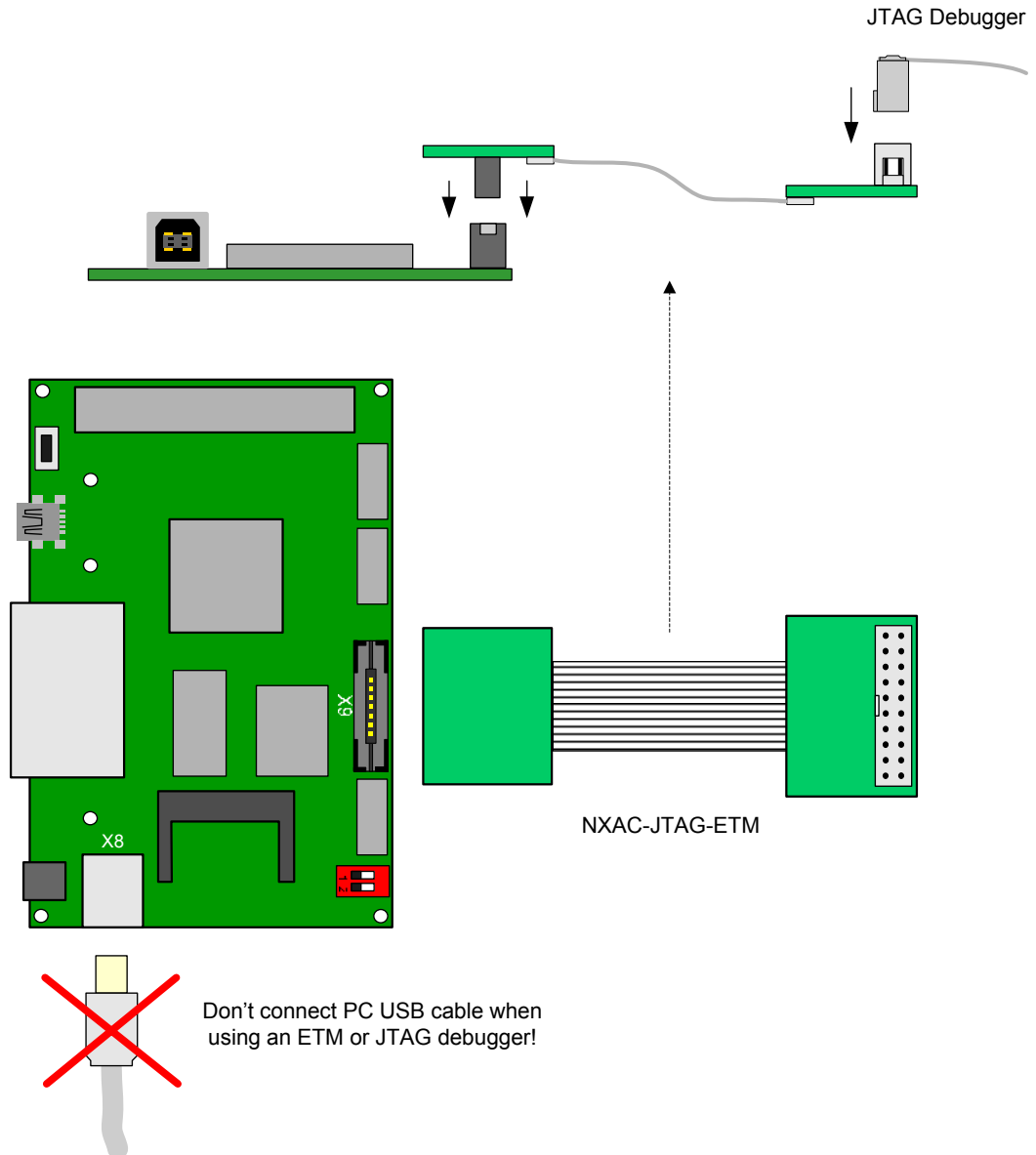
**NOTICE**

### Hardware Damage!

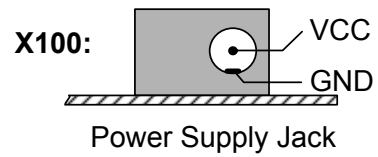
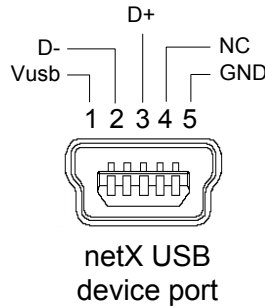
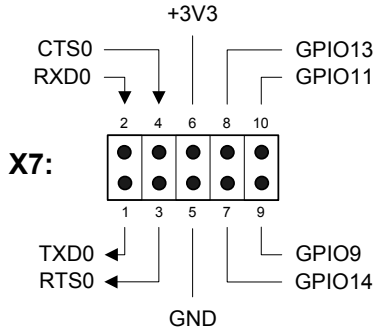
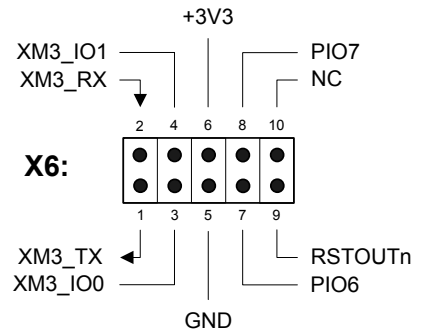
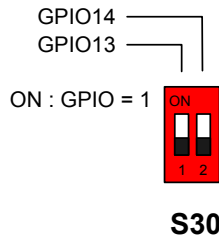
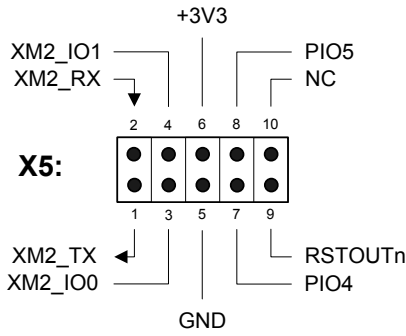
Only one debugger, **either** the onboard unit **or** an external debugger may be active at a time, otherwise the debugger signals may drive against each other, which may result in damage of the onboard debugger and / or the external debugger!

When using an external debugger, the USB port for the Development PC (X8) must not be connected!

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



### 3 Connectors / Switches



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	GND	GND	GND	42	DPM_A7	EXT_A7	PIO60
9	PI040	PI040	PI040	43	DPM_A6	EXT_A6	PIO61
10	PI036	PI036	PI036	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	EXT_A1	PIO70
15	DPM_WRHn	EXT_WRHn	PIO44	49	DPM_A0	EXT_A0	PIO73
16	DPM_WRLn	EXT_WRLn	PIO45	50	GND	GND	GND
17	GND	GND	GND	51	DPM_D15	EXT_D15	PIO41
18	DPM_WIFn	EXT_ALE	PIO35	52	DPM_D14	EXT_D14	PIO42
19	DPM_BHEn	EXT_BHEn	PIO43	53	DPM_D13	EXT_D13	PIO37
20	GND	GND	GND	54	DPM_D12	EXT_D12	PIO38
21	SEL_A18	EXT_CS3n	PIO84	55	DPM_D11	EXT_D11	PIO39
22	SEL_A16	EXT_CS2n	PIO79	56	DPM_D10	EXT_D10	PIO33
23	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	SELA_A15	EXT_A23	PIO72	60	DPM_D6	EXT_D6	PIO75
27	SELA_A14	EXT_A22	PIO71	61	DPM_D5	EXT_D5	PIO76
28	SELA_A13	EXT_A21	PIO68	62	DPM_D4	EXT_D4	PIO77
29	SELA_A12	EXT_A20	PIO67	63	DPM_D3	EXT_D3	PIO78
30	(DPM_A19)	EXT_A19	PIO63	64	DPM_D2	EXT_D2	PIO81
31	(DPM_A18)	EXT_A18	PIO62	65	DPM_D1	EXT_D1	PIO82
32	(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_A16)	EXT_A16	PIO58

DIP switch / LED assignment:

Switch	assigned PIO	LED	assigned PIO
S30 - 1	GPIO13	V12	GPIO11
S30 - 2	GPIO14	V13	GPIO10
		V14	GPIO09
		V15	GPIO08

Note: - LEDs are active low (setting the GPIO to '0' will turn on LED)  
 - DIP switches are active high (switch in 'ON' position -> GPIO reads '1')

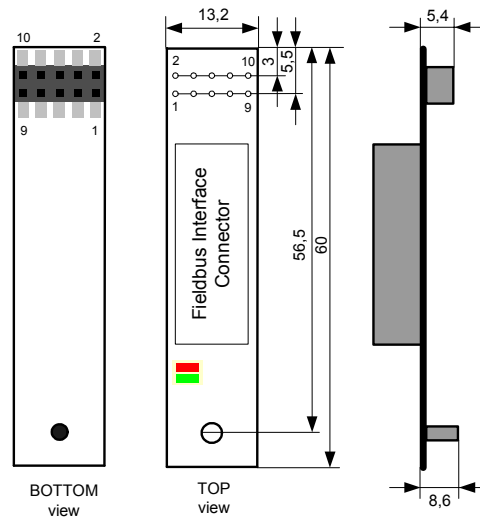
## 4 Accessories

### 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

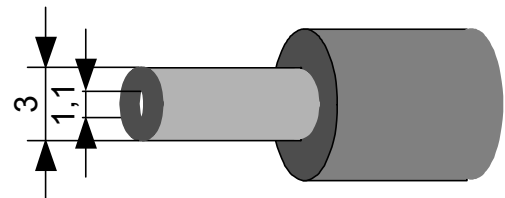
Technical Data:

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

Output: 24V / 0,625mA

Cable: 1,8 m

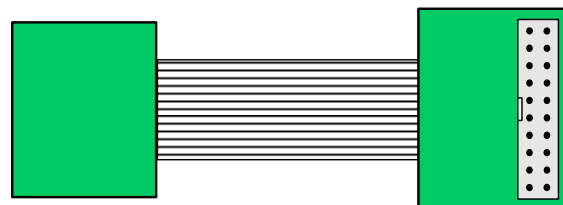
**Order Number: 7930.000**



### 4.3 NXAC-JTAG-ETM

ETM-to-JTAG adapter

**Order Number: 2400.200**



## 5 Contact

### Headquarter

#### Germany

Hilscher Gesellschaft für  
Systemautomation mbH  
Rheinstrasse 15  
65795 Hattersheim  
Phone: +49 (0) 6190 9907-0  
Fax: +49 (0) 6190 9907-50  
E-Mail: [info@hilscher.com](mailto:info@hilscher.com)

#### netX Support

Phone: +49 (0) 6190 9907-97  
E-Mail: [netxsupport@hilscher.com](mailto:netxsupport@hilscher.com)

### Subsidiaries

#### China

Hilscher Ges.f.Systemaut. mbH  
Shanghai Representative Office  
200010 Shanghai  
Phone: +86 (0) 21-6355-5161  
E-Mail: [info@hilscher.cn](mailto:info@hilscher.cn)

#### Support

Phone: +86 (0) 21-6355-5161  
E-Mail: [cn.support@hilscher.com](mailto:cn.support@hilscher.com)

#### Japan

Hilscher Japan KK  
Tokyo, 160-0022  
Phone: +81 (0) 3-5362-0521  
E-Mail: [info@hilscher.jp](mailto:info@hilscher.jp)

#### Support

Phone: +81 (0) 3-5362-0521  
E-Mail: [jp.support@hilscher.com](mailto:jp.support@hilscher.com)

#### France

Hilscher France S.a.r.l.  
69500 Bron  
Phone: +33 (0) 4 72 37 98 40  
E-Mail: [info@hilscher.fr](mailto:info@hilscher.fr)

#### Support

Phone: +33 (0) 4 72 37 98 40  
E-Mail: [fr.support@hilscher.com](mailto:fr.support@hilscher.com)

#### Switzerland

Hilscher Swiss GmbH  
4500 Solothurn  
Phone: +41 (0) 32 623 6633  
E-Mail: [info@hilscher.ch](mailto:info@hilscher.ch)

#### Support

Phone: +49 (0) 6190 9907-99  
E-Mail: [ch.support@hilscher.com](mailto:ch.support@hilscher.com)

#### India

Hilscher India Pvt. Ltd.  
New Delhi - 110 025  
Phone: +91 9810269248  
E-Mail: [info@hilscher.in](mailto:info@hilscher.in)

#### USA

Hilscher North America, Inc.  
Lisle, IL 60532  
Phone: +1 630-505-5301  
E-Mail: [info@hilscher.us](mailto:info@hilscher.us)

#### Support

Phone: +1 630-505-5301  
E-Mail: [us.support@hilscher.com](mailto:us.support@hilscher.com)

#### Italy

Hilscher Italia srl  
20090 Vimodrone (MI)  
Phone: +39 02 25007068  
E-Mail: [info@hilscher.it](mailto:info@hilscher.it)

#### Support

Phone: +39 / 02 25007068  
E-Mail: [it.support@hilscher.com](mailto:it.support@hilscher.com)