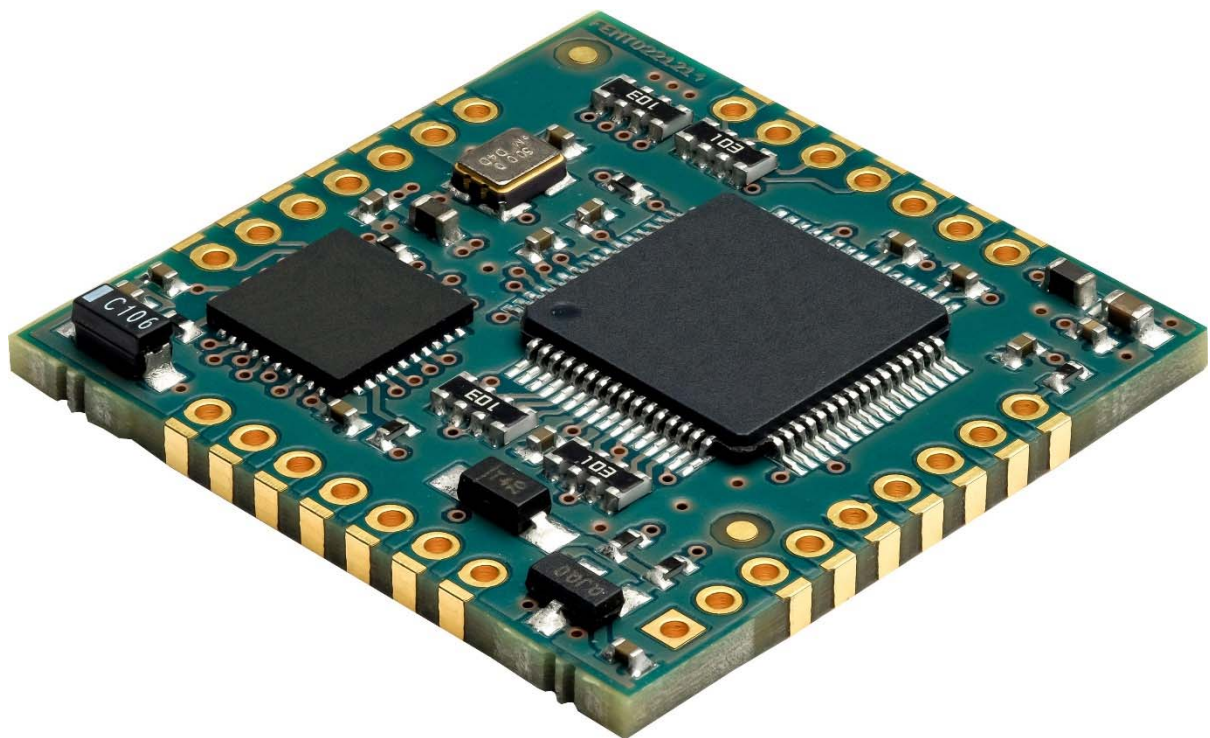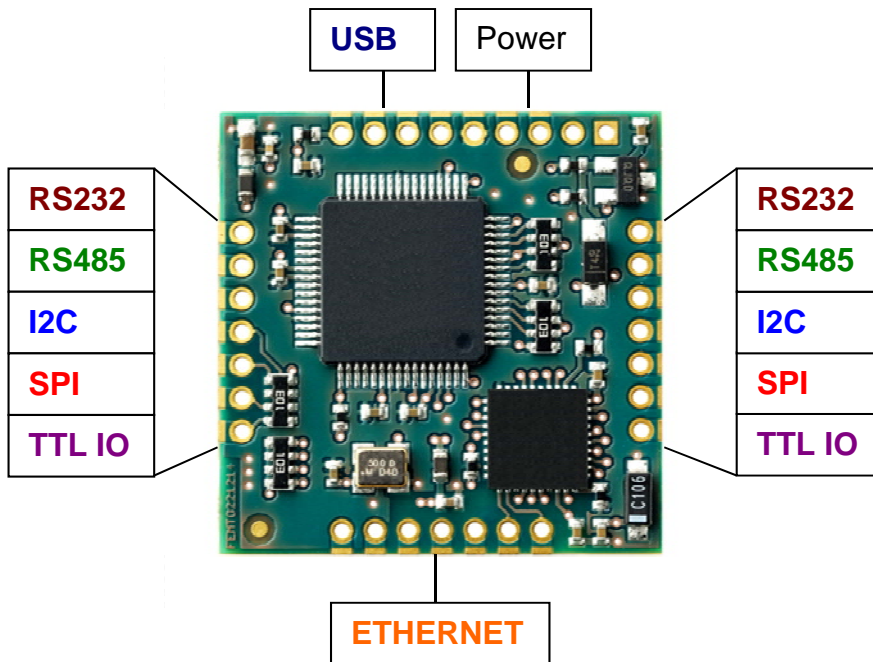# XT - FEMTO - SXL

MADE
IN
GERMANY

XT-FEMTO-SXL

The **XT-FEMTO-SXL** is a very small embedded network module which can be easily integrated into any terminal. The **XT-FEMTO-SXL** embedded network module with the dimensions 27 x 27 x 3mm, can be built-in as SMD or as THT component and be used in your switching directly or optionally. A total of **two bus systems** with five switchable interfaces such as **RS232**, **RS485**, **I2C, SPI** as well as **TTL-IO** will be made available. With only a few additional components such as a RJ45 jack with an integrated transducer and a 3.3 volts power supply your terminal will be immediately network-compatible and can be accessed world-wide.

Hardware description

USB   Power

RS232
RS485
I2C
SPI
TTL IO

RS232
RS485
I2C
SPI
TTL IO

ETHERNET

Supported systems

1. Windows
2. Linux
3. UNIX

Supported protocols
IP-Dual-Stack

1. IPv4
2. TCP
3. UDP
4. FTP
5. TFTP
6. ICMP
7. ARP
8. SNMP
9. LPR
10. DHCP
11. BOOTP
12. DNS
13. TELNET
14. HTML
15. http
16. DYNDNS
17. SMTP
18. POP3
19. SYSLOG
20. IPv6
21. NDP
22. ICMPv6
23. DHCPv6
24. TCPv6
25. UDPv6
26. Netbios-NS
27. LLMNR
28. ZeroConfig
    -APIPA
    -AutoIP
29. IP-Multicast
30. AK-M2M
31. IEEE802.1x
32. SSL 3.0
33. TLS1.0
34. TLS1.1
35. TLS1.2

Technical data

- **Temperature range:**
  -40°C .. + 85°C

- **Standards**
  CE / WEEE / RoHS
  EN 55022 Class B
  EN 55024 Class A

- **Power supply:**
  3.3 volts
  170 mA

- **Dimensions:**
  27 x 27 x 3 mm

- **Weight:**
  3 grams

- **Ethernet (MDIX)**
  10 Half Duplex
  10 Full Duplex
  100 Half Duplex
  100 Full Duplex
  AutoSensing

- **Interfaces – Features**
  - All data pins 3.3 volts TTL, 10K Pullup
  - All data interfaces are freely selectable

  2 x RS232/RS485
  Baud rate   : up to 2.5 MBauds
  DataBits   : 7.8
  Parity   : Odd,Even,None
                   Mark,Space
  Signals   : TXD, RXD, RTS, CTS,
                   DSR, DTR, DCD
  RS485   ReadWrite

  2 x I2C
  Mode   : Master
  DataBits   : 8
  Data rate   : 100KHz up to 2.5 MHz
  Signals   : SDA, SCL

  2 x SPI
  Mode   : Master/Slave
  DataBits   : 8
  Data rate   : up to 25 MBit(Master)
                   up to 2.5 MBit(Slave)
  Signals   : MISO,MOSI,SCK,SS
  SD-CARD   CardDetect,CardLock

  2 x TTL-IO
  Mode   : digital Input/Output
  Signals   : 7 Pins

  1 x USB   (optional)

  1 x Ethernet
  Signals   : RX+,RX-,TX+,TX-,AVDD,
                   LED-ACT,LED-LINK

Management

1. Telnet
2. Browser
3. serial interface

Emulations and functions

- Modem Emulation
- Connect-On-Data
- Auto-Connect
- Tunnel-Mode
- DYNDNS-Client
- FTP-Server
- FTP-Client
- FTP-Client
- LPR-Server
- I2C – Master
- SPI – Master / Slave
- TTL – IO
- 512KB internal flashdrive
- Flash-File system
- SD and DF CARD
- 4bit and SPI DISPLAY
- E-Mail – Client
- TCP/UDP -Client
- TCP/UDP –Server
- SYSLOG-Client

RS232 (TTL)

It is possible to use up to 2 independent, individually operating serial interfaces. Each interface can be individually set and it is possible to transfer data rates of up to 2.500.000 bauds. Furthermore, it is possible to additionally set emulations such as modem, Auto-Connect, Connect-On-Data, TCP / UDP client using up to 10 parallel connections, TCP/UDP server, tunnel mode with transfers of the signal modes as well as settings, E-Mail client including sending and receiving of e-mails.

RS485 (TTL)

It is possible to use up to 2 independently operating RS485 interfaces. This mode also supports so-called 2-wire components, e.g. the MAX3072E, since it does not possess a proper control wire. Each interface can be individually set and it is possible to transfer data rates of up to 2.500.000 bauds. Furthermore, it is possible to additionally set emulations such as modem, AutoConnect, Conntect-On-Data, TCP/UDP client using up to 10 parallel connections, TCP/UDP server, tunnel mode with transfer of the signal modes as well as settings, E-Mail client including sending and receiving of e-mails.

I2C

It is possible to use up to 2 independently operating I2C interfaces. A data mode has also been implemented to achieve a maximum of flexibility. The interface can be individually set up and it is possible to transfer data rates of up to 2.500.000 bits/sec. Furthermore, you can additionally set emulations such as modem, AutoConnect, Conntect-On-Data, TCP/UDP client using up to 10 parallel connections, TCP/UDP server, E-Mail client including sending and receiving of e-mails.

SPI

It is possible to use up to 2 independently operating SPI interfaces in the master or slave mode. Each interface can be set up individually and it is possible to transfer data rates of up to 25MBit(Master) and 2.5Mbit(Slave). Furthermore, it is possible to additionally set emulations such as AutoConnect, Conntect-On-Data, TCP/UDP client using up to 10 parallel connections, TCP/UDP server, E-Mail-Client including sending and receiving of e-mails.

By making adjustments in the setup, the SPI interface can directly operate SD cards, DF cards or Data-Flash components. An implemented Flash-File system with FAT12/16/32 structure supports the FTP to save data on it or to read data from it. Now it is possible to save your own homepage or JAVA applet in order to present a proper and individual look to the customers via the WEB server.

SD cards:
- Up to 4 GByte
- FAT12/16/32
- PC-compatible

DF cards / components:
- Up to 4 GByte
- FAT12/16/32
- AT45DB011B,AT45DB021B
  AT45DB041B,AT45DB081B
  AT45DB0161B,AT45DB0321B
  AT45DB0642, AT45DB1282
  will be directly identified.

The SPI interface can also directly control as SPI display, e.g. the EA DOGM162B-A, which you can directly use via TCP/IP.

TTL IO

It is possible to directly control up to 14 pins via two interfaces. To do so, there is a proper control mode which can read the signals, switch them on or off. A tunnel mode allows the automatic transfer of the signal modes.

Top view

27 mm

24 mm

27 mm

24 mm

2 mm

(28) Ø 0.8 mm

0.8 mm   1.2 mm

Side view

1.6 mm

3 mm

Top view

P4.0 P4.1 P4.2 P4.3 P4.4 P4.5 P4.6

P3.0
P3.1
P3.2
P3.3
P3.4
P3.5
P3.6

P1.0
P1.1
P1.2
P1.3
P1.4
P1.5
P1.6
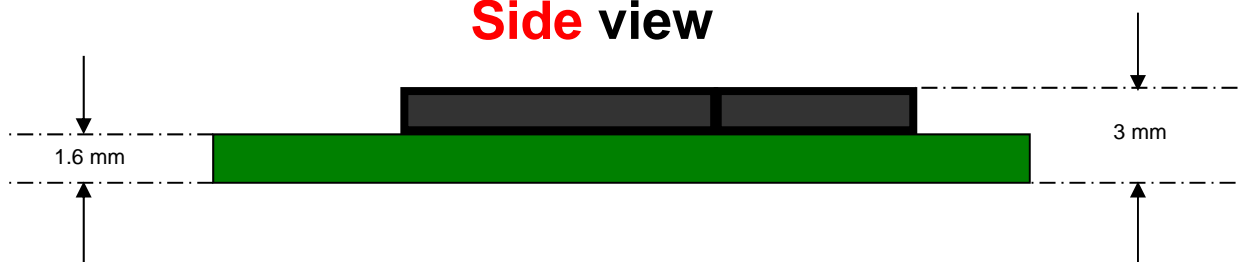
P2.0 P2.1 P2.2 P2.3 P2.4 P2.5 P2.6
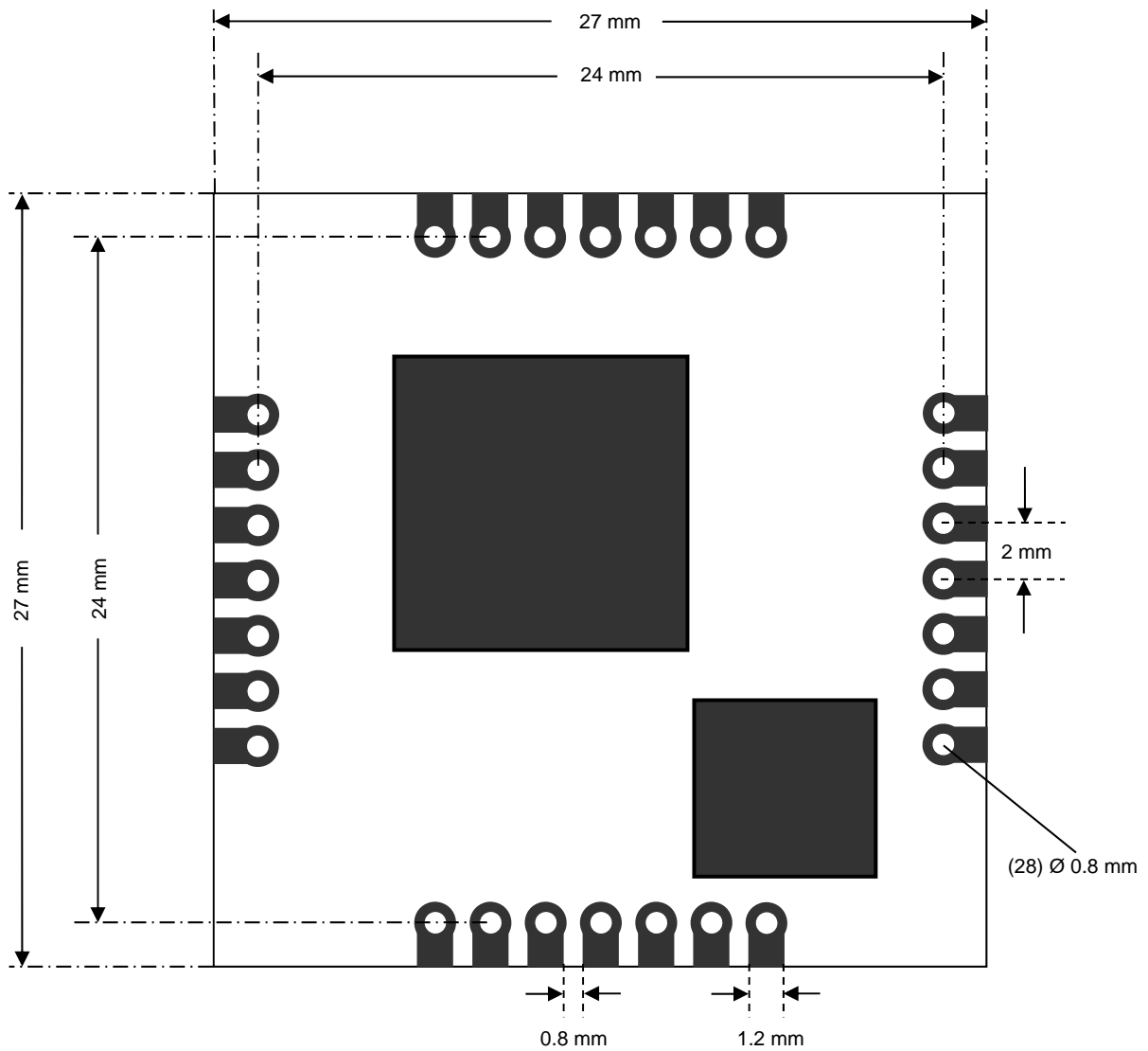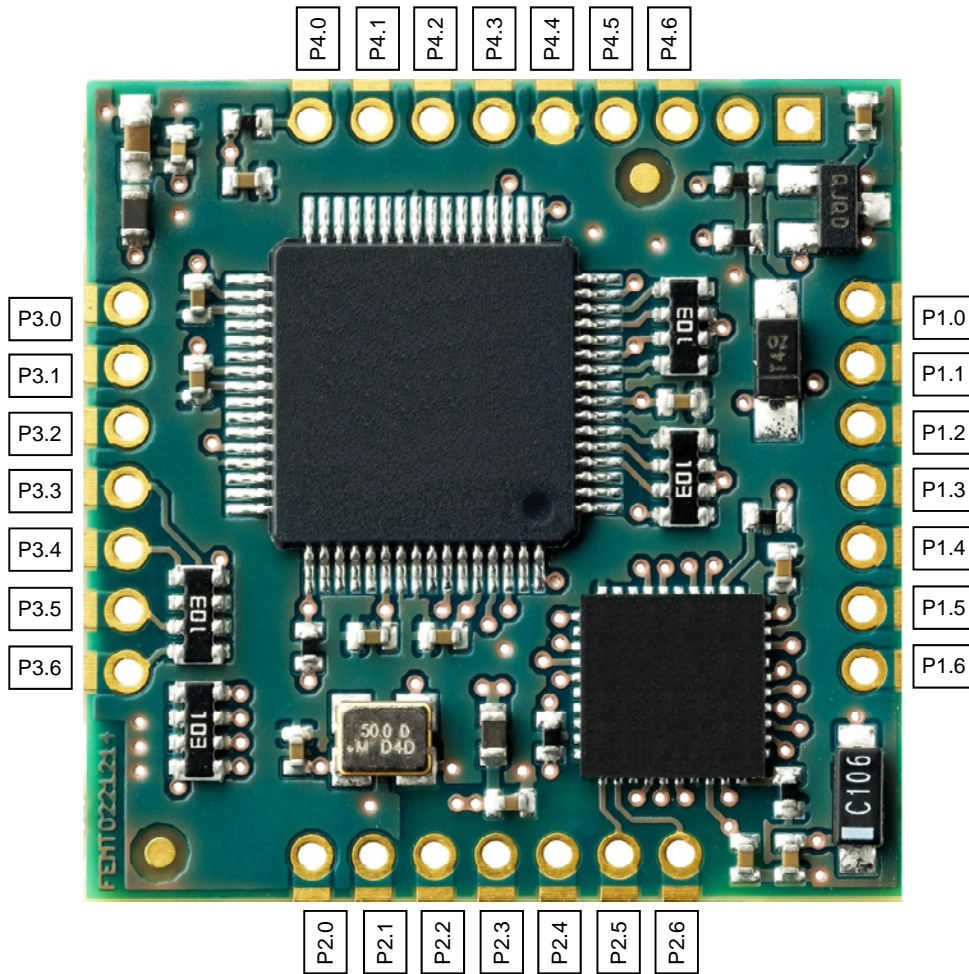
Absolute Maximum Ratings

Ambient temperature under bias.. -40°C to +85°C

Storage temperature... -65°C to +150°C

Voltage on VDD……………………………………………………....... -0.3V to +4.0V

Voltage on any 3.3 V pin……………………………………………...... -0.3V to (VDD + 0.3V)

Voltage on any 5V tolerant pin ……………………………………….... -0.3V to +5.5V

Voltage on D+ or D- pin …………………………………………….…... -0.3V to (VDD + 0.3V)

Voltage on VBUS.. -0.3V to +5.5V

PORT1:

PIN	RS232	RS485	I2C	SPI	TTL-IO	PULLUP	Type	VDD max
P1.0	TXD0	TXD0		MISO0	PIN1	10K	I/O	+3.3 volts
P1.1	RXD0	RXD0		MOSI0	PIN2	10K	I/O	+3.3 volts
P1.2	RTS0		SCL0		PIN3	10K	I/O	+3.3 volts
P1.3	CTS0		SDA0		PIN4	10K	I/O	+3.3 volts
P1.4	DTR0	R/W0		SS0	PIN5	10K	I/O	+3.3 volts
P1.5	DSR0			SCK0	PIN6	10K	I/O	+3.3 volts
P1.6	DCD0				PIN7	10K	I/O	+5V tolerant

PORT2:

PIN	Ethernet	PULLUP	Type	VDD max
P2.0	LED LINK		O	+3.3 volts
P2.1	LED ACT		O	+3.3 volts
P2.2	AVDD 3.3		PWR	
P2.3	TD-		I/O	
P2.4	TD+		I/O	
P2.5	RD-		I/O	
P2.6	RD+		I/O	

PORT3:

PIN	RS232	RS485	I2C	SPI	TTL-IO	PULLUP	Type	VDD max
P3.0	TXD1	TXD1		MISO1	PIN1	10K	I/O	+3.3 volts
P3.1	RXD1	RXD1		MOSI1	PIN2	10K	I/O	+3.3 volts
P3.2	RTS1		SCL1		PIN3	10K	I/O	+5V tolerant
P3.3	CTS1		SDA1		PIN4	10K	I/O	+5V tolerant
P3.4	DTR1	R/W1		SS1	PIN5	10K	I/O	+3.3 volts
P3.5	DSR1			SCK1	PIN6	10K	I/O	+3.3 volts
P3.6	DCD1				PIN7	10K	I/O	+5V tolerant

PORT4:

PIN	USB	POWER	RESET	Type	PULLUP	VDD max
P4.0	USBID			I	10K	+5V tolerant
P4.1	USB+			I/O		+3.3 volts
P4.2	USB-			I/O		+3.3 volts
P4.3	VBUS			I		+5V tolerant
P4.4		GND		PWR		0
P4.5		VDD		PWR		+3.3 volts
P4.6			RESET	I	10K	+5V tolerant

▮ = ActivLow

TITLE: XT_FEMTO_SXL_RS232

Document Number:

Date: 26.11.2014 12:29:38

REV:

Sheet: 1/1