



## **BIM M13x Evaluation Board**

### **Read me first !!!**

The software delivered with this agreement are sold only on the condition that the purchaser agrees to the terms and conditions of this agreement (side 8). PLEASE READ THIS AGREEMENT CAREFULLY.

If you do not agree, return the packaged software UNOPENED immediately.

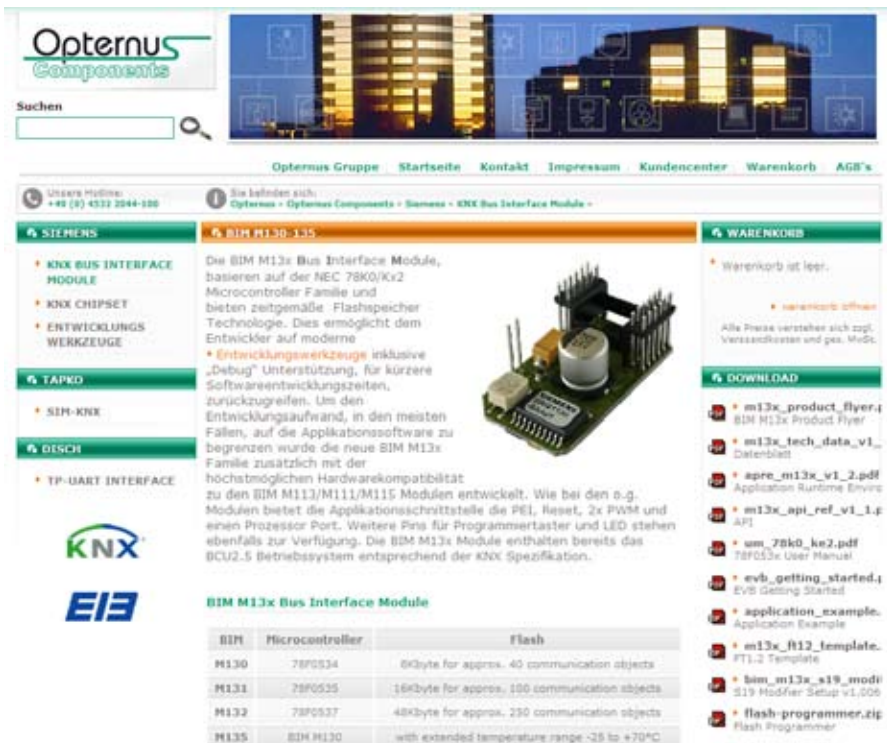
#### **Contents:**

1. EVB Getting Started
2. EVB Description
3. Software License Agreement

## I. Install Minicube2 driver (and NEC Debugger)

1. Extract „DIWIN-CDR-QB-78K0\_V294.zip“ from folder NEC...
2. Run setup.exe from folder „MQB2ALL“ and follow the installation instructions
3. Run setup.exe from folder „ID78K0-QB“ and follow the installation instructions
4. Extract „DF-78K0-Kx2-EE\_V210.zip“ from folder NEC...
5. Run DFINST.exe from folder „NEC“
6. Klick on „Install...“ and choose „NECSETUP.INI“
7. Follow the installation instructions
8. Connect Minicube2 to your computer
9. Let windows find the driver automatically

Have a look at our homepage and find related updates and additional downloads:  
[http://www.opternus.com/opternus-components/siemens/knx-bus-interface-module/bim\\_m130\\_135.html](http://www.opternus.com/opternus-components/siemens/knx-bus-interface-module/bim_m130_135.html)



The screenshot shows the Opternus Components website. The main content area is titled "BIM M130-135". It features a description of the module, a photograph of the physical component, and a table of specifications. The left sidebar contains navigation menus for Siemens, Taped, and Besch. The right sidebar includes a download section with various files for download.

**Opternus Components**

Suchen

Opternus Gruppe | Startseite | Kontakt | Impressum | Kundencenter | Warenkorb | AGB's

Sie befinden sich: Opternus > Opternus Components > Siemens > KNX Bus Interface Module

### SIEMENS

- KNX BUS INTERFACE MODULE
- KNX CHIPSET
- ENTWICKLUNGS WERKZEUGE

### TAPE


- SIM-KNX

### BESCH

- TP-UART INTERFACE

### BIM M13x Bus Interface Module

Die BIM M13x Bus Interface Module, basieren auf der NEC 78K0/Kx2 Microcontroller Familie und bieten zeitgemäße Flashspeicher Technologie. Dies ermöglicht dem Entwickler auf moderne **Entwicklungswerkzeuge** inklusive "Debug" Unterstützung, für kürzere Softwareentwicklungszeiten, zurückzugreifen. Um den Entwicklungsaufwand, in den meisten Fällen, auf die Applikationssoftware zu begrenzen wurde die neue BIM M13x Familie zusätzlich mit der höchstmöglichen Hardwarekompatibilität zu den BIM M111/M111/M115 Modulen entwickelt. Wie bei den o.g. Modulen bietet die Applikationsschnittstelle die PE1, Reset, 2x PWM und einen Prozessor Port. Weitere Pins für Programmertaster und LED stehen ebenfalls zur Verfügung. Die BIM M13x Module enthalten bereits das BCU2.5 Betriebssystem entsprechend der KNX Spezifikation.



BIM	Microcontroller	Flash
M130	78F0334	6KByte for approx. 40 communication objects
M131	78F0525	16KByte for approx. 100 communication objects
M132	78F0337	48KByte for approx. 230 communication objects
M135	BIM M130	with extended temperature range -25 to +70°C

### WARENKORB

Warenkorb ist leer.

### DOWNLOAD

- m13x\_product\_flyer.t
- BIM M13x Product Flyer
- m13x\_tech\_data\_v1\_
- Datenblatt
- apre\_m13x\_v1\_2.pdf
- Application Runtime Envir
- m13x\_api\_ref\_v1\_1.p
- API
- um\_78k0\_kx2.pdf
- 78F03x User Manual
- evb\_getting\_started.t
- EVB Getting Started
- application\_example.
- Application Example
- m13x\_ft1-2\_template.
- FT1-2 Template
- bim\_m13x\_s19\_modul
- S19 Modifer Setup v1.006
- flash-programmer.zip
- Flash Programmer

## II. Install IAR Embedded Workbench for 78K

1. Install „IAR Embedded Workbench for 78K“
2. If necessary update „IAR Embedded Workbench for 78K“ to V4.40A or higher
3. Run „EW78K\_setup\_78K0-Kx2\_V2.10.exe“ from „DF-78K0-Kx2-EE\_V210.zip“
4. Choose „Package for EW78K V4xx“
5. Start „IAR Embedded Workbench for 78K“
6. Open Workspace „BIM\_M\_13x\_Template.ewp“ (The EVB is preflashed with the debug file for bus interface module BIM M130 (or M135))

Please note:

The license key can be either your Quick Start key or your permanent key (found on the CD cover), you have 30 days to try the product. After registration at IAR you will receive the permanent key via email.

## III. Connection

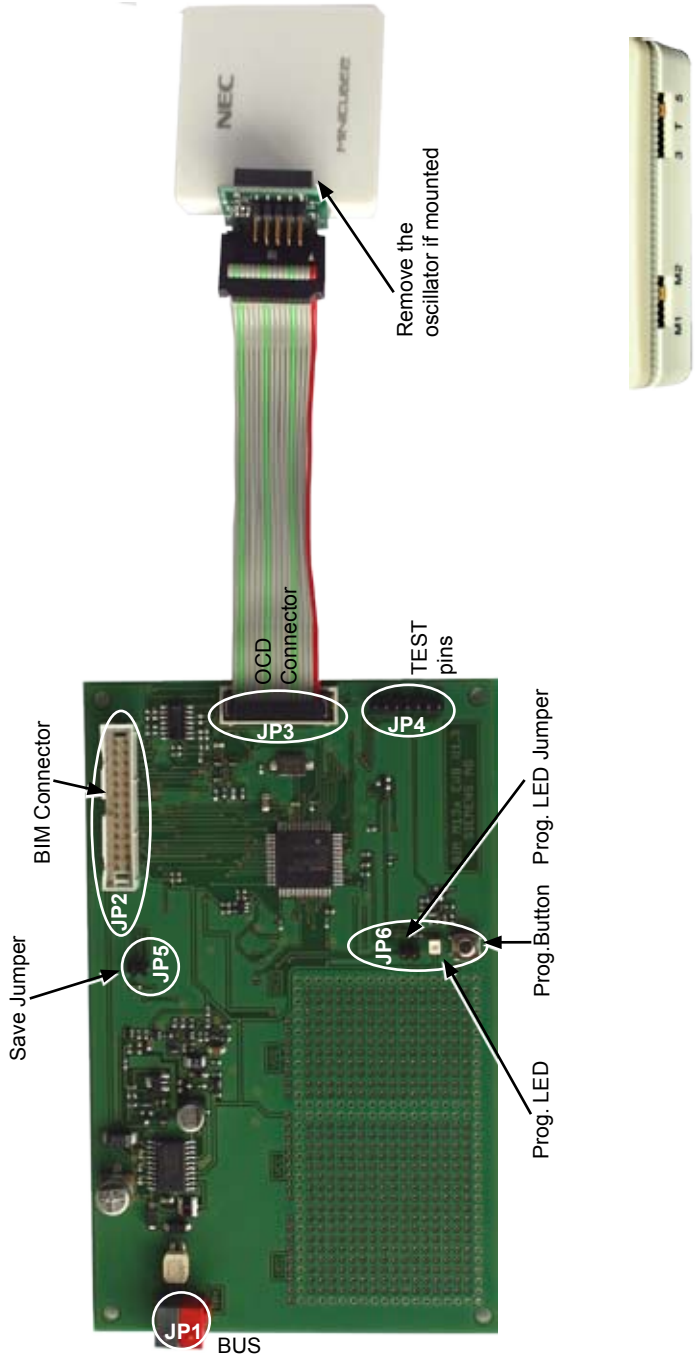
1. Connect hardware in the order shown on side 3
2. The oscillator on the 78K0-OCD board is not necessary, remove it if mounted.
3. Set „Mode select switch“ at the minicube to M2.
4. Set „Power select switch“ at the minicube to 5.
5. Connect to KNX-TP, connect red terminal to TP+
6. Connect to host machine using USB cable.

## IV. Reset EVB to initial state/ other bus interface module debug config

1. Start „ID78K0-QB“ from „NEC Tools32“
2. Select chip 78F0537\_64
3. Go to File -> Download...
4. Choose file type \*.hex
5. Open
  - „BIM\_M\_130\_\_M\_135\_Debug\_v1\_08.hex“ for BIM M130
  - „BIM\_M\_131\_Debug\_v1\_08.hex“ for BIM M131
  - „BIM\_M\_132\_Debug\_v1\_08.hex“ for BIM M132

When finished close „ID78K0-QB“

# Hardware connection

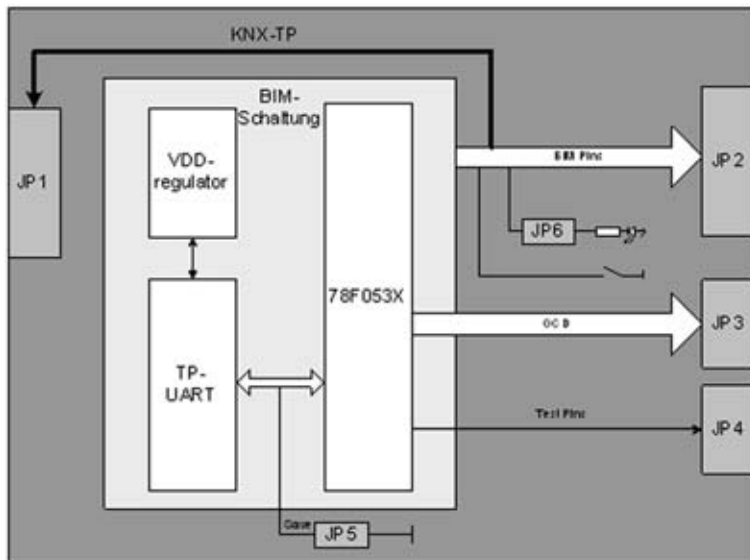


## BIM M13x EVB Description

The BIM Evaluation Board is based on the BIM circuit. It has nearly the same electrical characteristics as the BIM.

Differences to the BIM:

- Larger footprint of the processor enabling the placement of a socket
- A programming button and a programming led.
- The led can be disconnected by a jumper.
- A jumper to signal a save event to the processor



## PIN assignment

### JP1, network connection

Connection to KNX-TP (21V-30V). Connect red terminal to TP+.

### JP2, BIM-Connection

A connection to the target hardware is possible via ribbon cable.

PIN	BIM-PIN	Name	Function
1	a6	A1	
2	d6	PLMB	
3	b6	C7	
4	c6	LED	Programming LED connection. Remove JP6 if this connection is used.
5	a5	A3	
6	d5	RTS	PEI-RTS Pin
7	b5	A0	
8	c5	Type	Input for type resistor
9	a4	A5	
10	d4	RXD	PEI-RXD pin
11	b4	A2	
12	c4	CTS	PEI-CTS pin
13	a3	A7	
14	d3	TXD	PEI-TXD pin
15	b3	A4	
16	c3	CLK	PEI-CLK pin
17	a2	C35V	
18	d2	VCC	
19	b2	A6	
20	c2	Button	Programming button connection.
21	a1	Reset	Reset in/output of bim
22	d1	VDD	
23	b1	PLMA	
24	c1	GND	
25	e1	BUS+	
26	e2	BUS-	

## PIN assignment

### JP3, OCD-connector

Connect the NEC Minicube2 here.

The additional module (78K0-OCD Board) is necessary.

Remove the oscillator from the 78K0-OCD board.

Mode select switch -> M2

Power select switch -> 5



### JP4, Test pins

Nr	Name	Used by	Function
1	T1	System	OS-Cycle (changes state after every cycle)
2	T2	System	High = User, Low = System
3	T3	User	Can be used for debugging
4	T4	User	Can be used for debugging

### JP5, Save

If this jumper is connected the BIM will call the save function.

### JP6, LED

This jumper connects the led to BIM pin c6.

## Software Lizenz Vereinbarung

### **Achtung!**

**Auf der beiliegenden CD befindet sich das Betriebssystem „KNX-System 2.5 für BIM M13x“ („Software“). Die Software darf durch den Erwerber („Lizenznehmer“) ausschließlich zur Programmierung des Entwicklungswerkzeuges „BIM M13x EVB“ („Entwicklungswerkzeug“) verwendet werden.**

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## Software License Agreement

**Please note:**

The enclosed CD contains the operating system „KNX-System 2.5 for BIM M13x“ („Software“). The purchaser („Licensee“) may use this Software solely for installing the development tool „BIM M13x EVB“ („Development Tool“).

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