



Application Note Melexis Universal Master

User Manual

Kevin Berlit

Nico Bollen

Carsten Klug

Heiko Leutert

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VAT BE 0435.604.729

Transportstraat 1
3980 Tessenderlo
Phone: +32 13 67 07 95
Mobile: +32 491 15 74 18
Fax: +32 13 67 07 70
www.melexis.com

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1 Abbreviations

Table 1: Abbreviations

Term	Stands For
GUI	Graphical User Interface
FL	FastLin
IP	Internet Protocol
LED	Light-emitting diode
LIN	Local Interconnect Network
MeLiBu	Melexis Light Bus
MUM	Melexis Universal Master
NAD	Node Address
OS	Operating system
PPM	Pulse-position modulation
PWM	Pulse-width modulation
USB	Universal Serial Bus

2 Introduction

This document provides a description of the “Melexis Universal Master” (MUM).

The “Melexis Universal Master” can be used as a master device in order control and program Melexis ICs via following interfaces:

- LIN
- PPM
- FastLIN
- MeLiBu

The MUM shall be used for development only!

3 Hardware Kit

3.1 Overview



Figure 1: Hardware kit content

This hardware kit contains the following items:

- Melexis Universal Master (MUM)
- 5V power supply with interchangeable mains connector
- USB cable

3.2 Top view

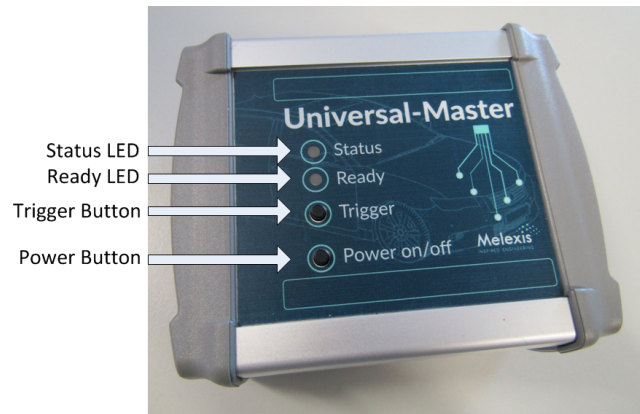


Figure 2: Top view

Status => LED currently not used

Ready => LED displays the working status of the "Melexis Universal Master"

- Red: device is busy (e.g. startup, shutdown or update)
- Green: device is ready for use
- Off: device is shut down and can be removed from the powersupply

Trigger => Button currently not used

Power => Button to start and shutdown the device

3.3 Left side view

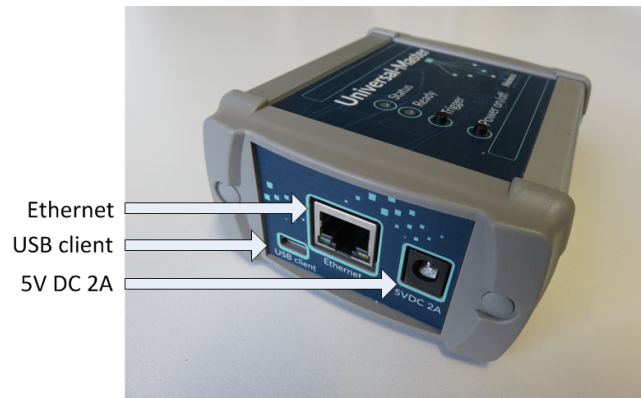


Figure 3: Left side view

Ethernet => Ethernet connector for controlling the device

USB client => USB client connector for controlling the device

5VDC 2A => Power supply connector

3.4 Right side view

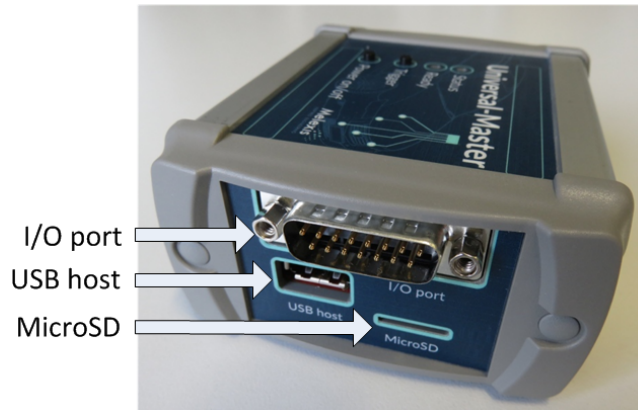


Figure 4: Right side view

I/O port => Male D-SUB15 I/O port connector (pinout see table 2)

USB host => USB host connector (currently not used)

MicroSD => MicroSD card slot used to update the “Melexis Universal Master” software see section Update the software

Table 2: Pinout I/O port connector

Pin	Name	Type	Description
1	COML	Input/Output	MeLiBu I/O pin
2	GND	Ground	Ground
3	I2C SCL	Output	I2C - Serial Clock Line
4	OUTPUT0	Output	Digital output (currently not used)
5	OUTPUT1	Output	Digital output (currently not used)
6	FL/LIN/PPM	Input/Output	Interface pin for LIN, PPM and Melexis FastLIN
7	GND	Ground	Ground
8	POWER OUT	Output	Output for the power supply connected to input pin 15 “POWER IN”. This output is software controlled and switched off by default.
9	COMH	Input/Output	MeLiBu I/O pin
10	GND	Ground	Ground
11	I2C SDA	Input/Output	I2C - Serial Data Line
12	INPUT0	Input	Digital input (currently not used)
13	INPUT1	Input	Digital input (currently not used)
14	GND	Ground	Ground
15	POWER IN	Input	Input for the power supply output pin 8 “POWER OUT” (max 2.5A). This pin is not used to power the “Melexis Universal Master”.

4 Installation steps

In order to allow for communication between the PC and the Melexis Universal Master it is mandatory to connect the device via USB or via Ethernet.

4.1 Communication via USB

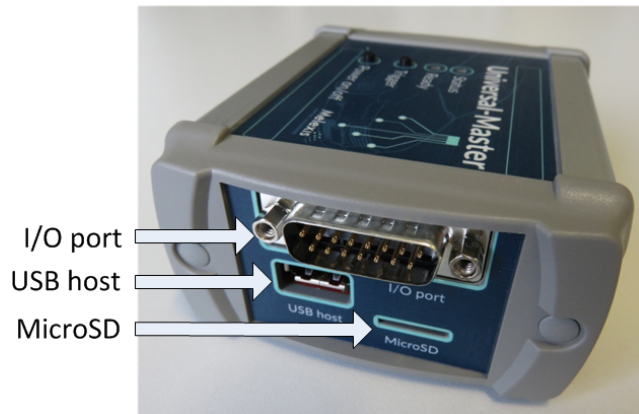


Figure 5: Location USB and the 5V input connector

1. Connect the 5V power supply to the “5VDC 2A” connector of the “Melexis Universal Master”.
2. Connect the USB Cable between the “Melexis Universal Master” and the PC.
3. Wait until the Windows OS has finished the driver installation. The CDC driver is not required and because of this it will not be installed.

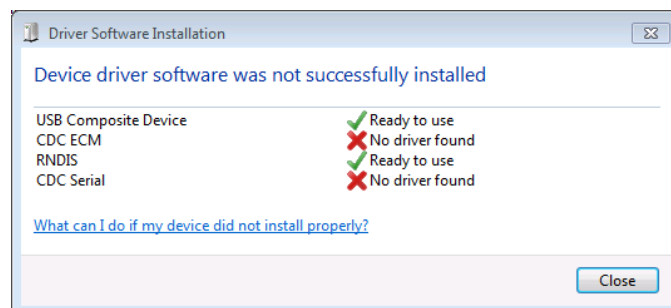


Figure 6: Driver Software Installation

The default IP address of the “Melexis Universal Master” is 192.168.7.2 and can not be changed. This address can be checked as shown in figure 7.

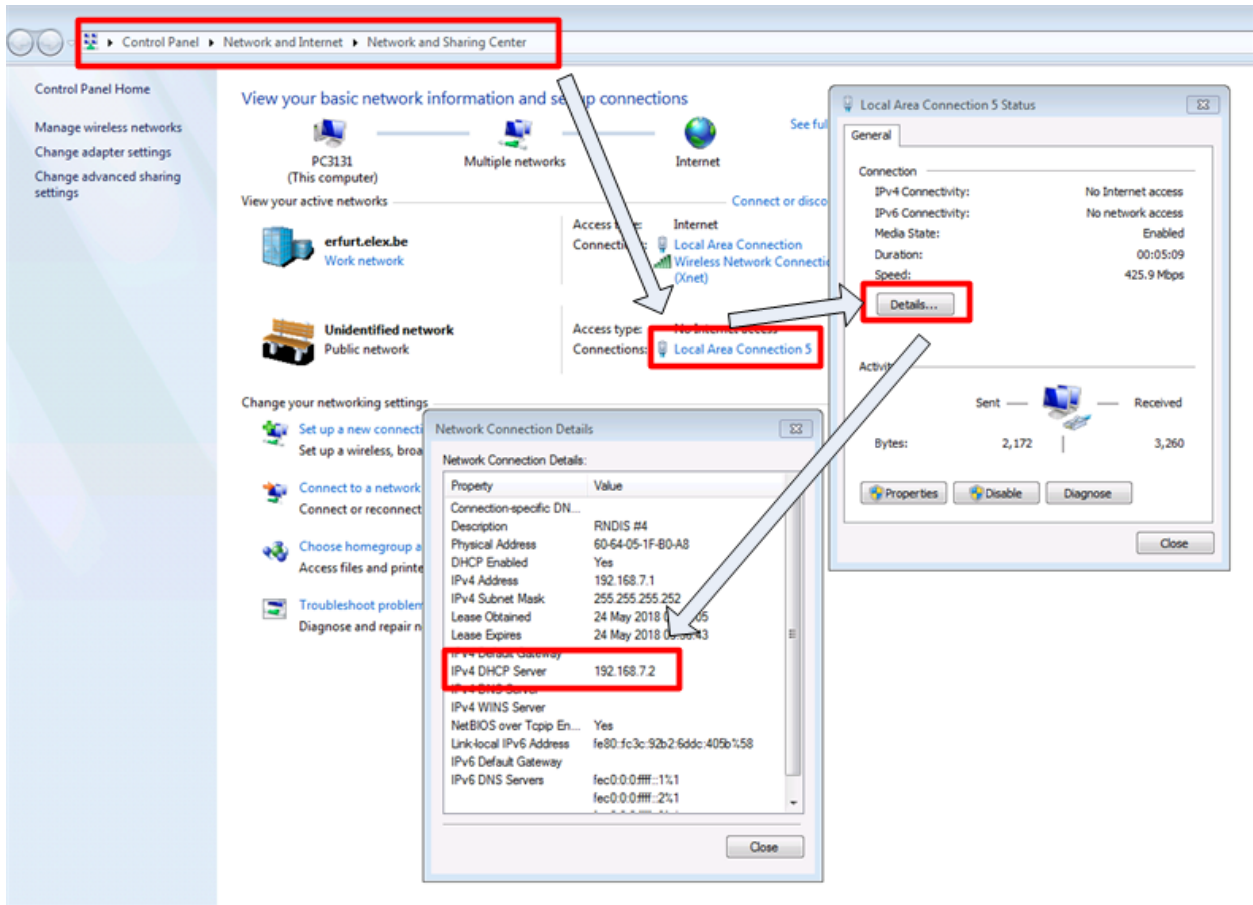


Figure 7: Windows IP settings

4.2 Communication via Ethernet

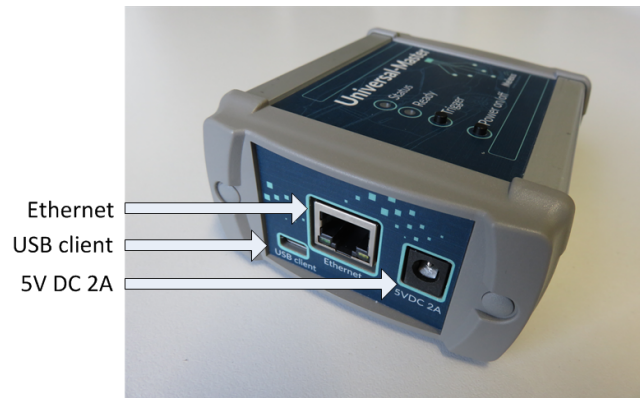


Figure 8: Location Ethernet and the 5V input connector

1. Connect the 5V power supply to the “5VDC 2A” connector of the “Melexis Universal Master”.
2. Connect a UTP cable between the “Melexis Universal Master” and the switch/router which your computer is connected to.

The Melexis Universal Master is preconfigured for dynamic IP assignment via DHCP, check your DHCP server for the assigned IP address. The device can also be accessed via its **hostname**, per default the hostname will be set to “mum-XXXXXXX” wherein “XXXXXXX” is the serial number as written on the bottom of the device. This hostname can be changed via the device’s webinterface.

ATTENTION: After updating the MUM via SD-CARD the hostname is reset to the default value. Please connect the MUM via USB and update the hostname according to the description in section Using the webinterface.

5 Start the device

The “Melexis Universal Master” will start automatically after connecting the power supply and the USB cable.

In case the “Melexis Universal Master” was shutdown via the Power button (location see Figure 2) or via software and the power supply and the USB cable are already connected, it can be started by pushing the Power button.

If the boot process is finished the Ready LED (location see Figure 2) will switch from red to green.

6 Shut down the device

The “Melexis Universal Master” is a Linux based device and needs to be handled like a PC. This means it will boot automatically but it requires a manual shutdown of the “Melexis Universal Master” before the power supply is disconnected.

Shutdown sequence:

1. In case the 5V power supply **and** the USB cable are connected, please unplug the USB cable. This avoids an unwanted restart of the device after shutdown.
2. Press the “Power on/off” button and the color of the “Ready LED” will change to red.
3. Wait until the “Ready LED” is switched off. These will takes around 5s.
4. Remove the 5V power supply.

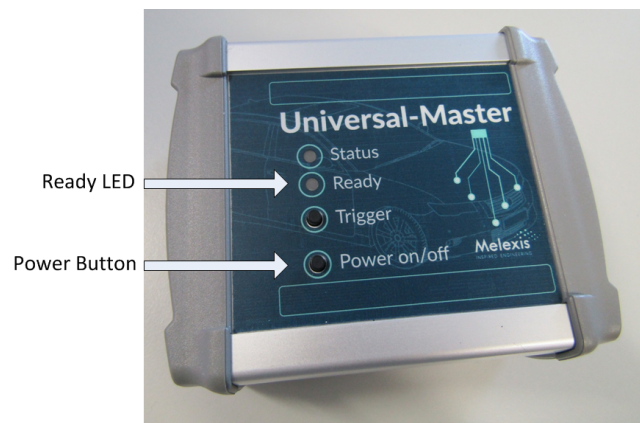


Figure 9: Location of the “Ready LED” and the “Power on/off” button

It is mandatory to shut down the “Melexis Universal Master” before the power supply will be disconnected. Otherwise the Linux OS can be damaged!

In case the Linux OS of the “Melexis Universal Master” was damaged because of an incorrect shutdown handling, the device can be recovered. Please follow the instructions mentioned in chapter Update the software.

7 Using the webinterface

The “Melexis Universal Master” has a build in webinterface which allows users to get some device details and update configurations.

To access the webinterface one should:

- Open his preferred webbrowser
- Surf to:
 - if connected via USB: <http://192.168.7.2/>
 - if connected via Ethernet: http://<mum_ip_address>/ OR http://<mum_hostname>/

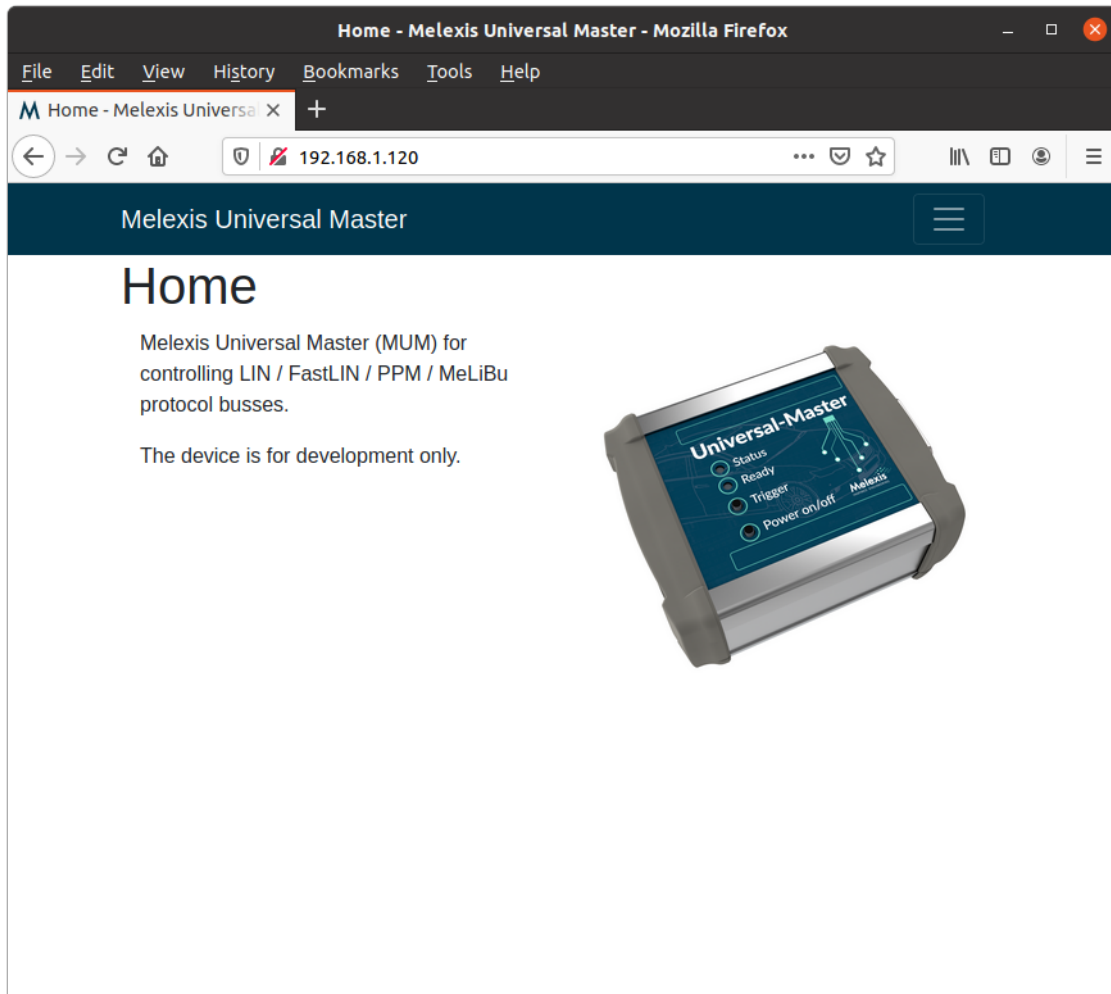


Figure 10: Webinterface: Homepage

8 Connect to Melexis EVBs

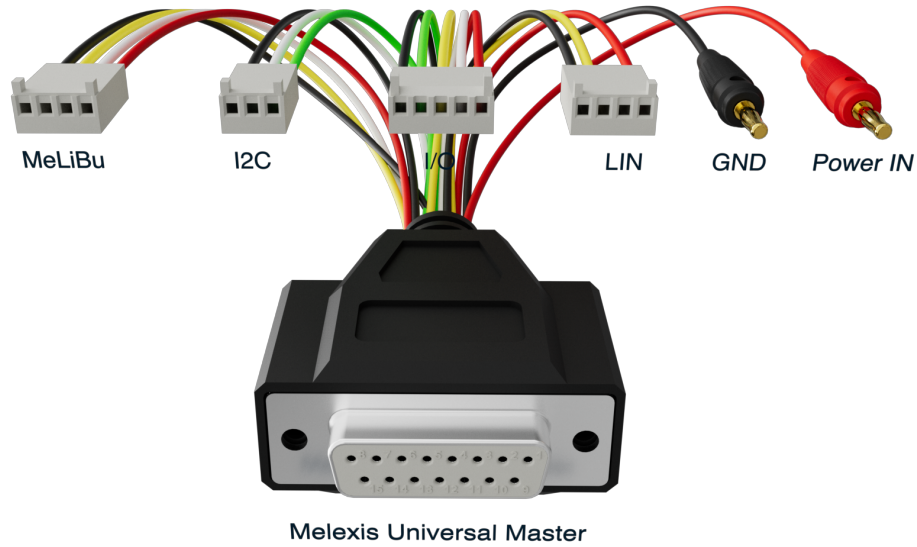


Figure 11: MUM Cable (animation)

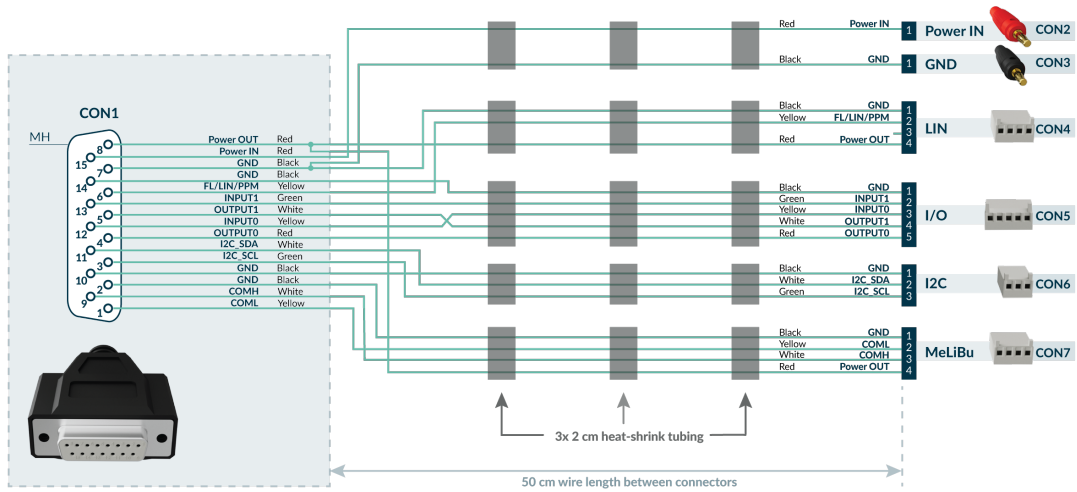


Figure 12: MUM Cable (schematic)

9 Connect to customer modules

The “Melexis Universal Master” has a male D-SUB15 connector, which provides all required interface pins in order to connect the “Melexis Universal Master” to a customer module. The pinout of the connector is printed on the bottom side of the device and the detailed description is available in table 2.



Figure 13: Pin configuration of the D-SUB15 connector

9.1 MeLiBu interface

In order to use the MeLiBu interface, following pins need to be connected between the “Melexis Universal Master” and the customer module:

- Pin 1 (COML)
- Pin 2 (GND) or any other GND pin of the connector
- Pin 9 (COMH)

The customer module with the MeLiBu slaves will not be powered from the “Melexis Universal Master”. This means it needs to be connected to its own power supply.

The first MeLiBu slave on a customer module needs to be configured as first slave in the MeLiBu chain. This will be done by connecting the AA_IN pin to the VIO pin. This is also valid in case only one MeLiBu slave is connected to the “Melexis Universal Master”.

9.2 FL/LIN/PPM interface

In order to use the LIN interface, following pins need to be connected between the “Melexis Universal Master” and the customer module:

- Pin 2 (GND) or any other GND pin of the connector
- Pin 6 (FL/LIN/PPM)

Additionally an external 12V supply voltage for the LIN master transceiver of the “Melexis Universal Master” needs to be provided:

- Pin 15 (POWER_IN) (connect an external 12V power supply)

In case the PPM interface will be used for programming the connected Melexis IC, two use cases need to be considered:

1. The Melexis IC has an empty/invalid FLASH memory or an firmware build **with** option “APP_MODULES += mls_device_id”: => no additional steps are required

2. The Melexis IC has a firmware inside, build **without** option "APP_MODULES += mls_device_id":
=> in order to be able to program the device via PPM, the supply voltage of the IC needs to be controlled via the "Melexis Universal Master". For this reason pin 8 "POWER_OUT" needs to be connected to the supply voltage input pin of the customer module and it provides now directly the power supply for that customer module. (current consumption of the module must be <2.5A)
 - Pin 7 (GND) or any other GND pin of the connector
 - Pin 8 (POWER_OUT) (12V supply voltage for the customer module)

10 Update the software

The “Melexis Universal Master” software can be updated via a micro-SD card slot of the device. The necessary steps for preparing the SD-card and flashing the “Melexis Universal Master” are described in this chapter.

These instructions should also be followed in case the Universal Master is not anymore working as expected.

10.1 Preparing the micro-SD card

For the “Melexis Universal Master” software update a 4GB micro-SD card with a read speed of at least 80MB/s is required.

1. Download the latest “Melexis Universal Master” software image from the Melexis Softdist-Server: https://softdist.melexis.com/custassetsJRightFrame?assetname=MUM_Image
2. Unzip the downloaded image to a local folder on your PC.
3. Writing the image to the micro-SD card using the tool Win32DiskImager or similar. This tool can be downloaded from following location: <https://sourceforge.net/projects/win32diskimager/files/latest/download?source=navbar>. The program settings can be found in Figure 14.

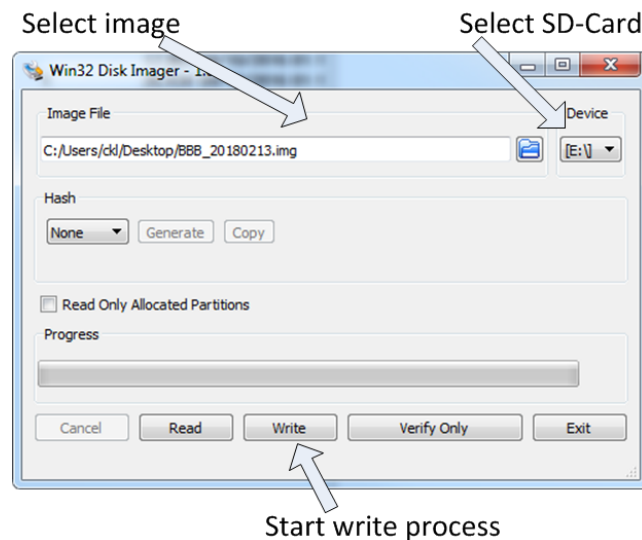


Figure 14: GUI of Win32DiskImager

10.2 Flashing the device

1. Shutdown the “Melexis Universal Master”.
2. Disconnect all connected cables including the powers supply and USB
3. Insert the micro-SD card into the SD-card slot (see Figure 15).
4. Connect the power supply to the “Melexis Universal Master”.
5. The Universal Master will start to update its software using the micro-SD card content. During this process the “Ready LED” (Figure 16) is red. This will take around 5min and it’s not allowed to remove the power supply during this process.
6. The software update is finished as soon as the “Ready LED” is switched OFF.
7. Remove the power supply.
8. Remove the micro-SD card from the “Melexis Universal Master” SD-card slot.
9. Reconnect the Universal Master to the power supply.
10. Now the new software will be booted. After the flash process was successfully finished, the “Ready LED” will switch from red to green.



Figure 15: Location of SD-card Slot

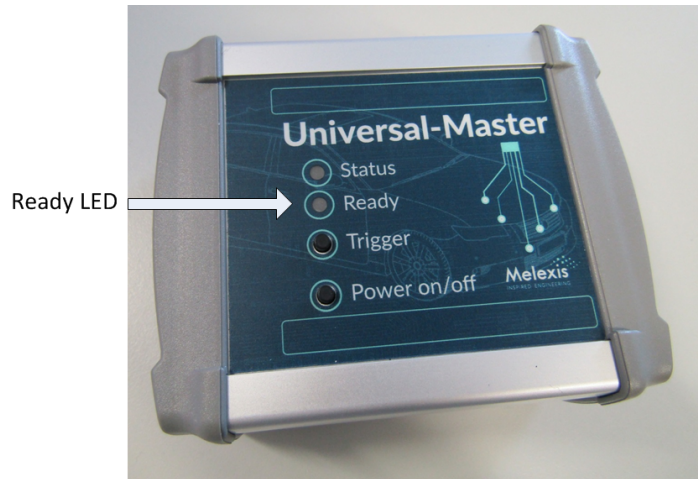


Figure 16: Location of Ready LED

10.3 Software changelog

10.3.1 Release v3.5.1

10.3.1.1 Socket Server

- Fix: Melibu: handling of test results for multiple nodes
- Fix: Melibu2: values for max position from differential autoaddressing, which shall end arbitration phase
- Update: Melibu2: support of 64k flash

10.3.1.2 Webinterface

- Fix: MLX81352/54 full order codes
- Add: MLX90332C PPM bootloading support
- Add: PPM bootloader chip identification
- Add: supply/bus voltage and current measurement
- Add: support for MLX81339B02, MLX81349A01 and MLX81119xAA

10.3.2 Release v3.3.1

10.3.2.1 Socket Server

- Add: PPM: MLX81352/54 flash programming support
- Add: UART protocol support
- Add: SPI slave protocol support
- Update: PPM: do not execute page retries
- Update: add setup/teardown/set_baudrate in I2C
- Update: PRU firmware to v1.2.0
 - Add: UART firmware variant

10.3.3 Release v3.1.0

10.3.3.1 Socket Server

- Update: PRU firmware to v1.1.0
 - Fix: melibu2 max message size
- Update: Melibu: double timeout because sending could be still ongoing and must be taken into account
- Update: Zynq generates separate package
- Update: socket_interface.rst - add hint for closing and re-open a connection

10.3.3.2 Webinterface

- Update: add support for MLX81339B and MLX81350B PPM programming

10.3.4 Release v3.0.0

10.3.4.1 Socket Server

- Fix: shutdown when spi was not used
- Update: MeLiBu: ACK is now handled on client side as node firmware can adapt the ack-value itself
- Update: MeLiBu: support custom wakeup length for script
- Update: MeLiBu: add timeout differentiation between no data and incomplete data
- Update: MeLiBu2: erase_sector - request full response
- Update: MeLiBu2: frame delay between a position detection sequence must be at least 252us
- Update: MeLiBu2: add error code for failing security seed calculation
- Update: MeLiBu2: security key relax: check if enough security keys are available, not if they match exactly

10.3.5 Release v2.6.0

10.3.5.1 Socket Server

- Fix: Melibu2: set default baudrate after sending EPM
- Fix: Melibu2: fix nibble and byte arbitration reset handling - for position 0
- Fix: Melibu2: fixing failing write flash by checking for "ongoing" status
- Fix: Melibu: update pru firmware to fix MeLiBu timeout handling
- Add: SPI support
- Update: Melibu2: differential autoaddressing - wait at least 5ms for arbitration_reset
- Update: Melibu: wakeup pulse configurable to support long wakeup
- Upgrade PRU master to v0.22.0
 - Update: Melibu: set timeout timer start value after sending the breakfield
 - Update: Melibu: configurable wakeup pulse length
- Update: cpplint and fix accordingly

10.3.6 Release v2.5.1

10.3.6.1 Socket Server

- Fix: LIN enable pin handling when multiple capes are available
- Fix: Melibu: project ID getter function
- Add: Melibu2: check if project ID is matching .hex file
- Add: Melibu2: add flash sector erase + write
- Add: PPM: Ganymede flash sessions (XFE and KF flash)
- Update: Melibu: update payload for status and move memory pointer
- Update: Melibu: set security key payload values for unused bytes
- Update: Coverity version and apply some static fixes
- Update: Melibu2: socket interface example for diff aa
- Update: Melibu2: time handling for diff aa
- Update: Melibu2: update flash erase parameters

10.3.6.2 Webinterface

- Update: add support for MLX81339, MLX81350 and MLX81118xAB PPM programming

10.3.7 Release v2.3.5

10.3.7.1 Socket Server

- Fix: crash of server when FAST protocol layer reports an error to transport layer

10.3.8 Release v2.3.4

10.3.8.1 Socket Server

- Fix: incorrect initialization of the LIN enable pin configuration
- Fix: Melibu 2 Arbitration Reset NAD value
- Add: Melibu get project ID

10.3.8.2 Webinterface:

- Add: more detailed LIN programmer progress indication

10.3.9 Release v2.3.2

10.3.9.1 Socket Server

- Fix: PPM: incorrect PPM entry pattern at very low speeds
- Fix: Melibu: not starting scripts using the autorun feature
- Add: Melibu: Melibu2 support
- Add: Melibu: Melibu2 bootloader support
- Add: Melibu: Melibu2 differential autoaddressing support
- Upgrade PRU master to v0.20.0
 - Add: Melibu: framing error handling
 - Update: Melibu: increase tracing buffer size
 - Update: FAST: use majority voting

10.3.9.2 Webinterface:

- Add: LIN programmer UI

10.3.10 Release v2.2.1

10.3.10.1 Socket Server

- Fix: PPM - incorrect timeout calculation for slow bitrates in broadcast mode
- Fix: LIN - set enable pin to output high level when needed
- Add: PPM - flash KF support
- Update: MeLiBu - sub-address explanation

10.3.10.2 Webinterface:

- Add: Flash CS programming support for applicable ICs
- Add: MLX81339 PPM programming support
- Add: MLX81350 PPM programming support
- Update: PPM programmer page disables flash CS and EEPROM verification when not applicable

10.3.11 Release v2.1.1

10.3.11.1 Socket Server

- Fix: Melibu: extend error response for melibu aa parameters
- Add: I2C protocol support
- Add: LIN diagnostic API v2 (v1 will be removed in next major)
- Add: Melibu RAM program session
- Update: Upgrade PRU FW v0.17.0
 - LIN: configurable bus short detection time
 - Melibu: TX data is now also considered for timeout detection
- Update: Melibu: have a standard delay after each RESET NAD to avoid issues due to ACK which is send by multiple slaves
- Update: Melibu: wait for the provided time after the last RESET NAD command
- Update: Melibu: wait for the provided time after the VERIFY NAD as well
- Update: Melibu: rename script mode to script version
- Update: LIN: configurable bus short detection time
- Update: socket interface documentation

10.3.11.2 Webinterface:

- Fix: LIN Commander not working over HTTP
- Update: switch to Vue single page application
- Update: add bare websocket interface in preference over Socket.IO
- Update: switch to Flask v2
- Update: PPM programmer UI uses websocket io API

10.3.12 Release v1.20.1

10.3.12.1 Socket Server

- Fix: Melibu script led message did not use extended mode
- Update: Perform flash sector erase before flash sector write
- Update: Melibu: binary script header to support different baud rate and optimize memory
- Update: PPM: EEPROM Programming Session command description
- Update: FAST: Increase timeout margin for 25kbps

10.3.12.2 Webinterface

- Fix: details page not functioning when using USB only
- Add: mum-server socket interface documentation
- Add: PPM one2one implementation
- Add: LIN and PPM websocket support
- Update: switch to https

10.3.13 Release v1.19.0

- Add: PPM EEPROM verification session support
- Add: PPM Flash CS verification session support
- Update: FAST protocol transport layer now waits for the last frame of a segmented session to be transmitted before reporting to client
- Update: Melibu update binary script header to support different baudrate and optimize memory
- Update: Increase PRU Ext RAM to 32MB
- Update: Webinterface details page now shows network configuration

10.3.14 Release v1.18.0

- Bug: LIN short circuit reported as unknown error instead of as short circuit
- Add: PPM Flash CS programming session support
- Update: Split the socket server class
- Update: Fix some documentation errors

10.3.15 Release v1.17.0

- Add: support melibu extended mode
- Update: melibu delay handling -> frame time instead of time after message
- Fix: LIN documentation having incorrect byte nr

10.3.16 Release v1.16.0

- Add: CAPE v5.1 support
- Update: PRU firmware to v0.15.0
 - Bug: LIN: Potential incorrect stopbit fault insertion for PID in S2M frames
 - Add: LIN: New error reporting bus not being able to be pulled low

10.3.17 Release v1.15.0

- Update: LIN: return CRC of S2M frame to client in extended mode
- Update: PRU firmware from v0.13.0 to v0.14.0
 - Add: LIN: option to force bit collisions in S2M messages

10.3.18 Release v1.14.2

- Bug: Melibu: overflow of variable while calculating timestamp

10.3.19 Release v1.14.1

- PPM: Fix frame timeout for custom frames

10.3.20 Release v1.14.0

- Add: command line protocol selection (TCP/UDP)
- Add: LIN: wake up pulse detection
- Add: PPM: option to send custom frame/sessions from client
- Update: PRU firmware to v0.13.0
 - Fix: Melibu: tracing framing error overflow
 - Add: LIN: wakeup pulse detection
- Update: PPM: Decrease flash prog keys session page0 timeout for correct error reporting

10.3.21 Release v1.13.0

- Add: CAPE v5.0 support
- Add: Command for reading power out current level

10.3.22 Release v1.12.1

- Update: PPM: explicitly set baudrate in setup

10.3.23 Release v1.12.0

- Update: PPM: increase low speed communication robustness
- Update: Melibu: use breakfield setting immediately
- Update: PRU firmware to v0.12.1

10.3.24 Release v1.11.0

- Update: PRU firmware to v0.10.0
- Update: LIN: support inter-byte times up to 51.1 Tbit
- Update: coverity fixes

10.3.25 Release v1.10.1

- Bug: FAST multi frame response has incorrect payload length

10.3.26 Release v1.10.0

- Add: Basic Melexis loader support
- Add: Melibu send free data
- Add: Melibu write flash sector
- Add: Melibu erase flash sector
- Update: PRU stopping time decreased
- Update: FAST protocol support
- Update: PRU firmware to v0.9.1
- Update: several Coverity issue fixes

10.3.27 Release v1.9.2

- Bug: LIN: potential incorrect checksum for extended M2S frame

10.3.28 Release v1.9.1

- Update: PRU firmware to v0.8.0

10.3.29 Release v1.9.0

- Add: Melibu tracing support
- Add: LIN Extended frame support

10.3.30 Release v1.8.1

- Fix: correct LIN frame transmission timeout calculation
- Update: Melibu start script documentation

10.3.31 Release v1.8.0

- Add: PPM margin to enter PPM pattern timeout
- Update: automatically deploy to stable repositories
- Update: Melibu make flash erase timeout configurable
- Fix: Melibu add BLLR pattern for enable write erase RAM command
- Fix: Melibu do not check ACK for S2M messages

10.3.32 Release v1.7.0

- Add: Web interface
- Add: Autorun melibu script feature
- Fix: PPM page 0 timeout to better fit 64k devices
- Fix: Melibu command length error not reported
- Add: PPM wait for response on bus command
- Update: PRU firmware from v0.6.0 to v0.7.0
- Update: PPM increase RX to TX time to 50us

10.3.33 Release v1.6.1

- Update: Melibu read functions do not need number of slaves and first address
- Update: Melibu return “wrong” address in case of invalid address
- Update: Melibu allow address 63 as single address
- Update: Melibu use delay for resetting address after each M2S Frame
- Update: Melibu reset Bootloader timeout-timer by sending message with non-broadcast addresses

10.3.34 Release v1.6.0

- Fix: PPM first flash page timeout (issue for 64kB chips)
- Add: LIN transport layer and corresponding send diagnostic request/response session commands
- Update: Melibu error reporting
- Update: PRU firmware from v0.5.0 to v0.6.0
- Update: PPM default enter PPM mode pattern timing for slow busses

10.3.35 Release v1.5.0

- Fix: PPM RAM session timeout
- Add: PowerOutManager
- Add: Melibu flash erase command
- Add: Melibu commands to get full frame in response of send frame

10.3.36 Release v1.4.0

- Added: PPM EEPROM programming support
- Fix: CRC8 calculation error which rarely fails (PPM EEPROM verify, PPM Frame)
- Add: Melibu separate auto-addressing function
- Add: Melibu server revision function
- Update: PRU firmware from v0.5.0 to v0.5.2
- Update: Increased PRU RAM
- Update: Switch OS from Debian stretch to buster

10.3.37 Release v1.3.0

- Fix: Melibu waiting time for sector erase
- Add: Melibu script support
- Update: Melibu separate enter EPM command
- Update: Eth socket increase max packet size from 130kb to 20mb
- Update: PRU firmware v0.4.0 to v0.5.0

10.3.38 Release v1.2.1

- Added: PPM EEPROM programming support
- Added: PPM flash crc verification support
- Fixed: PPM incorrect session crc
- Added: Melibu support for different baudrates of bootloader vs application
- Added: Melibu extra delay after EPM frame

10.3.39 Release v1.1.1

- Fixed: PPM block erase in broadcast mode not working
- Added: FAST basic support

11 Absolute maximum ratings

Table 3: Absolute maximum ratings

Parameter	Symbol	Min	Max	Unit
POWER_IN voltage	$V_{\text{POWER_IN}}$	-0.5	27	V
POWER_OUT current	$I_{\text{POWER_OUT}}$	0	2.5	A
INPUTx voltage	$V_{\text{IN_DIG}}$	-0.7	50	V

12 Electrical specifications

Table 4: Electrical specifications

Parameter	Symbol	Min	Typ	Max	Unit
INPUTx threshold level L => H	$V_{\text{IN_H}}$	.	2.3	.	V
INPUTx threshold level H => L	$V_{\text{IN_L}}$	.	0.9	.	V
OUTPUT0 low voltage	$V_{\text{OUT0_L}}$	.	0	.	V
OUTPUT0 high voltage	$V_{\text{OUT0_H}}$	.	3.3	.	V
OUTPUT1 low voltage	$V_{\text{OUT1_L}}$	.	0	.	V
OUTPUT1 high voltage	$V_{\text{OUT1_H}}$	.	5.0	.	V

13 Revision history

Table 5: Revision history

Version	Changes	Date
027	Update changelog for “Melexis Universal Master” software image Release v3.3.1-v3.5.1.	2026-04-03
026	Update changelog for “Melexis Universal Master” software image Release v3.1.0-v3.3.1.	2025-10-08
025	Update changelog for “Melexis Universal Master” software image Release v2.6.0-v3.1.0.	2025-08-04
024	Update changelog for “Melexis Universal Master” software image Release v2.5.1-v2.6.0.	2025-02-19
023	Update changelog for “Melexis Universal Master” software image Release v2.3.5-v2.5.1.	2024-12-04
022	Update changelog for “Melexis Universal Master” software image Release v2.2.4-v2.3.5.	2024-09-19
021	Update changelog for “Melexis Universal Master” software image Release v2.2.2-v2.3.4.	2024-09-17
020	Update changelog for “Melexis Universal Master” software image Release v2.2.1-v2.3.2.	2024-08-29
019	Add hint for fixed IP address using USB interface	2024-08-12
018	Update changelog for “Melexis Universal Master” software image Release v2.1.1-v2.2.1.	2024-06-11
017	Update changelog for “Melexis Universal Master” software image Release v1.20.1-v2.1.1.	2023-12-08
016	Update changelog for “Melexis Universal Master” software image Release v1.19.0-v1.20.1.	2022-09-30
015	Update changelog for “Melexis Universal Master” software image Release v1.18.0-v1.19.0.	2022-05-17
014	Update changelog for “Melexis Universal Master” software image Release v1.17.0-v1.18.0.	2022-02-01
013	Update changelog for “Melexis Universal Master” software image Release v1.16.0-v1.17.0.	2021-11-23
012	Update changelog for “Melexis Universal Master” software image Release v1.15.0-v1.16.0.	2021-07-05
011	Update changelog for “Melexis Universal Master” software image Release v1.13.0-v1.14.2.	2021-06-09
010	Update changelog for “Melexis Universal Master” software image Release v1.11.0-v1.13.0.	2021-03-25
009	Update changelog for “Melexis Universal Master” software image Release v1.9.2-v1.11.0.	2021-02-23
008	Add digital IO electrical ratings	2021-01-05
007	Update changelog for “Melexis Universal Master” software image Release v1.8.0-v1.9.1.	2020-09-11
006	Add absolute maximum ratings	2020-07-03
005	Add description for using the device on the Ethernet, the webinterface and pictures.	2020-06-29

Version	Changes	Date
004	Update changelog for “Melexis Universal Master” software image Release v1.5.0-v1.7.0.	2020-06-04
003	Update changelog for “Melexis Universal Master” software image Release v1.4.0.	2019-09-25
002	Update changelog for “Melexis Universal Master” software image Release v1.2.1.	2019-06-25
001	Initial release	2019-05-21

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