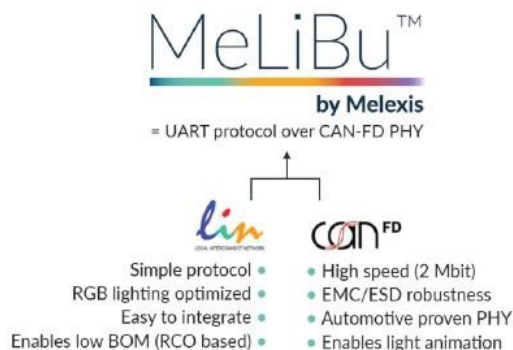


Interfacing FlashRunner 2.0 with MELEXIS MeLiBu



Melexis MeLiBu Introduction

The Melexis solution for smart automotive lighting



The MeLiBu, Melexis Light Bus, is a bidirectional differential bus to interconnect between a bus master and several slaves.

This bus is compatible to the CAN-FD physical parameters and up to 2 Mbit transmission speed is possible.

Key Features of MeLiBu are:

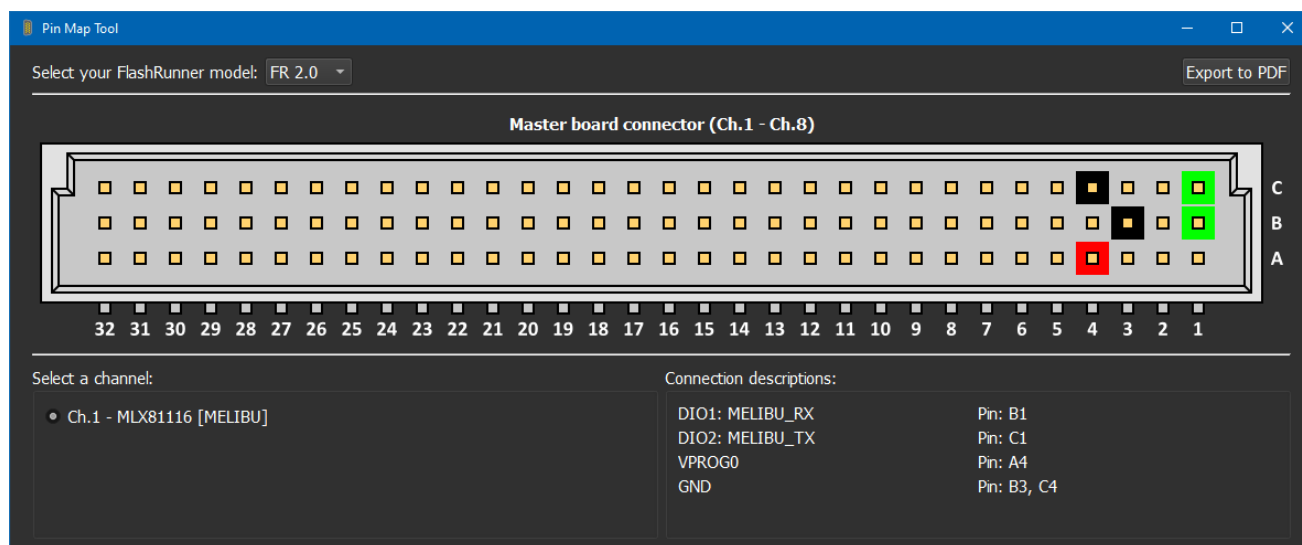
1. Bidirectional differential bus
2. Up to 2 Mbit
3. Variable number of 8bit-databytes (6-12-18-24-30-36 bytes possible)
4. Protocol Protection: Parity + CRC + ACK
5. Low interrupt load to MCU because of DMA access
6. 2 RAM buffers for data reception
7. 60 unique addresses, 4 broadcast addresses
8. Auto addressing of nodes possible

Melexis MeLiBu Protocol and PIN map

MLX81116, MLX81117, MLX811130 and MLX81143 devices support the MeLiBu protocol.

#TCSETPAR CMODE <MELIBU> - Frequency is fixed at 1 MHz

MeLiBu PIN MAP



Melexis MeLiBu SMH CAN-FD ADAPTER

SMH CAN-FD Adapter Safety

Note: Keep all the components of the FlashRunner 2.0 platform always in a well-ventilated area, to prevent product overheating, which could affect product performance and, if maintained for a long time, could damage the hardware product components.

FlashRunner 2.0 CAN-FD Adapter is a low-voltage device.

However, when integrated into automatic test equipment or when interfacing it with other systems, take all precautions to avoid electrical shocks due to, for example, different ground references.

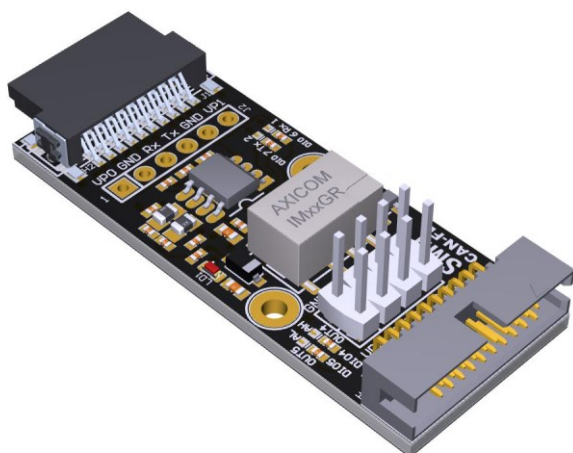
To protect all the devices against electrostatic discharge (ESD), always connect yourself to the ground (e.g., via wrist straps) when handling the instrumentation.

Make all connections to the target system before applying power to the instrument.

Always store all the electronic components inside an antistatic bag when not in use.

SMH CAN-FD Adapter for FlashRunner 2.0

The CAN-FD Adapter for FlashRunner 2.0 and FlashRunner LAN 2.0 Next Generation is a compact high-integration device that converts the signals from the FlashRunner 2.0 output port to the levels of the CAN Bus.



Board: **PC10693**

SMH CAN-FD Adapter Hardware Configurations

Inputs available:

- J1** Input from the Cable Interface output connector (If it's mounted)
- J2** can be used for wire-wrapping the input signals

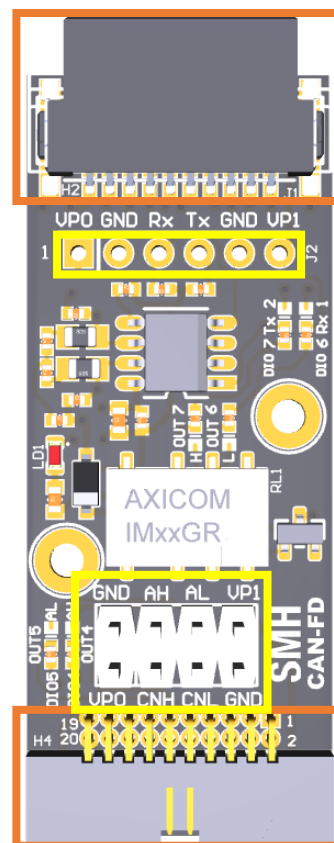
Outputs available:

- J4** used for wire-wrapping the output CAN signals
- H4** for Cable interface pass through output connection to target (If it's mounted)

Input from **J1**, **H1** or **H2**:

- UART RX** connected to **DIO6**: R4 = 0R, R7 = NM
- UART TX** connected to **DIO7**: R16 = 0R, R15 = NM

Output to **H4**:



DIO0, DIO1, DIO2, DIO3 pass through from J1/H1 connectors

DIO4:

R11 mounted, pass through from DIO4 input
R12 mounted: switch to CANH_AUX from relay open

DIO5:

R13 mounted, pass through from DIO5 input
R14 mounted: switch to CANL_AUX from relay open

DIO6:

R17 mounted, pass through from DIO6 input
R18 mounted: switch to CANL from internal relay close

Power Supply:

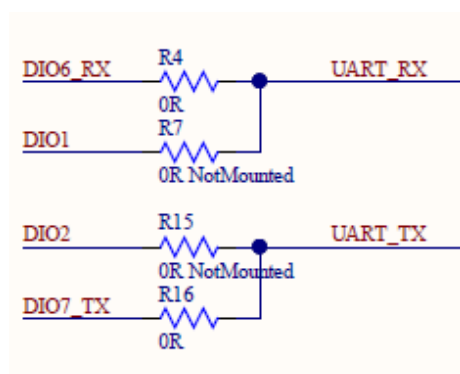
VPROG1 must be used to close the 12V relay onboard

VPROG0 is used to power supply the TCAN1044V transceiver

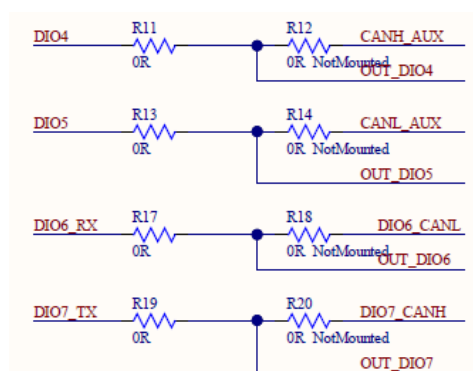
Additional Note:

Relay can be not mounted, but a **0R** or **SOLDERJUMPER** must be placed to **R1** and **R9** below the relay body.

SMH CAN-FD Adapter Input Switch Schematic Reference

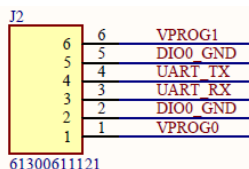


SMH CAN-FD Adapter Output Schematic Reference

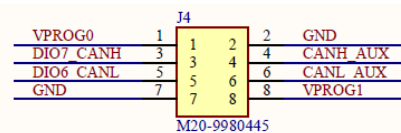


SMH CAN-FD Adapter Connections and Connectors

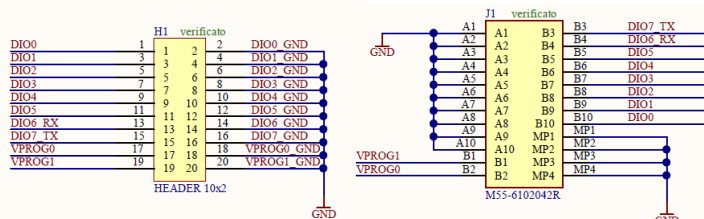
J2 input strip or wires



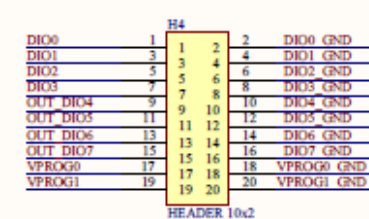
J4 Output strip or Wires



Input connectors: **H1, H2** and **J1**



Output Connection: **H4**



Connector Types:

- **J1:** Harwin Inc. M55-6102042R
- **H1 H2 H4:** BOX HEADER, 0.050 20 POS

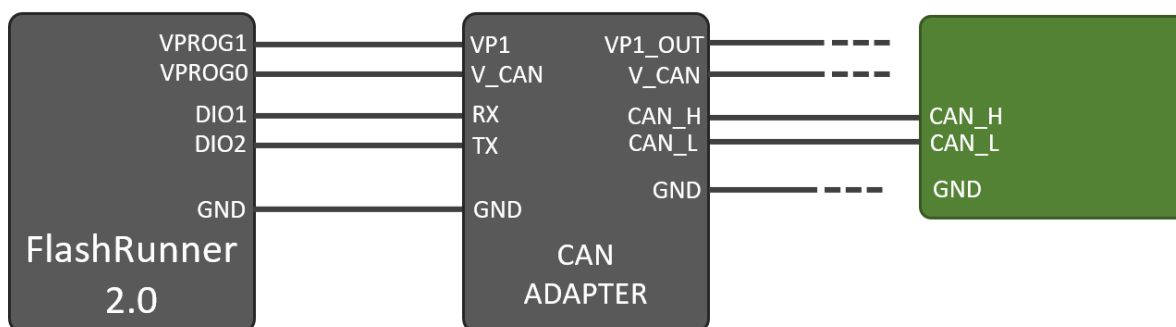
SMH CAN-FD Adapter for MeLiBu

The microcontroller lines, needed to program a device through CAN MeLiBu protocol, are the following:

- **CAN_H** Differential CAN signal (High)
- **CAN_L** Differential CAN signal (Low)
- **V_CAN** Device Power Supply
- **GND** Device Power Supply Ground

The differential bus transceiver is directly integrated into the adapter board with no need for external components.

As a standard, the V_CAN line has to be fixed to 5V configuring VPROG0 level of the corresponding FlashRunner 2.0 channel.

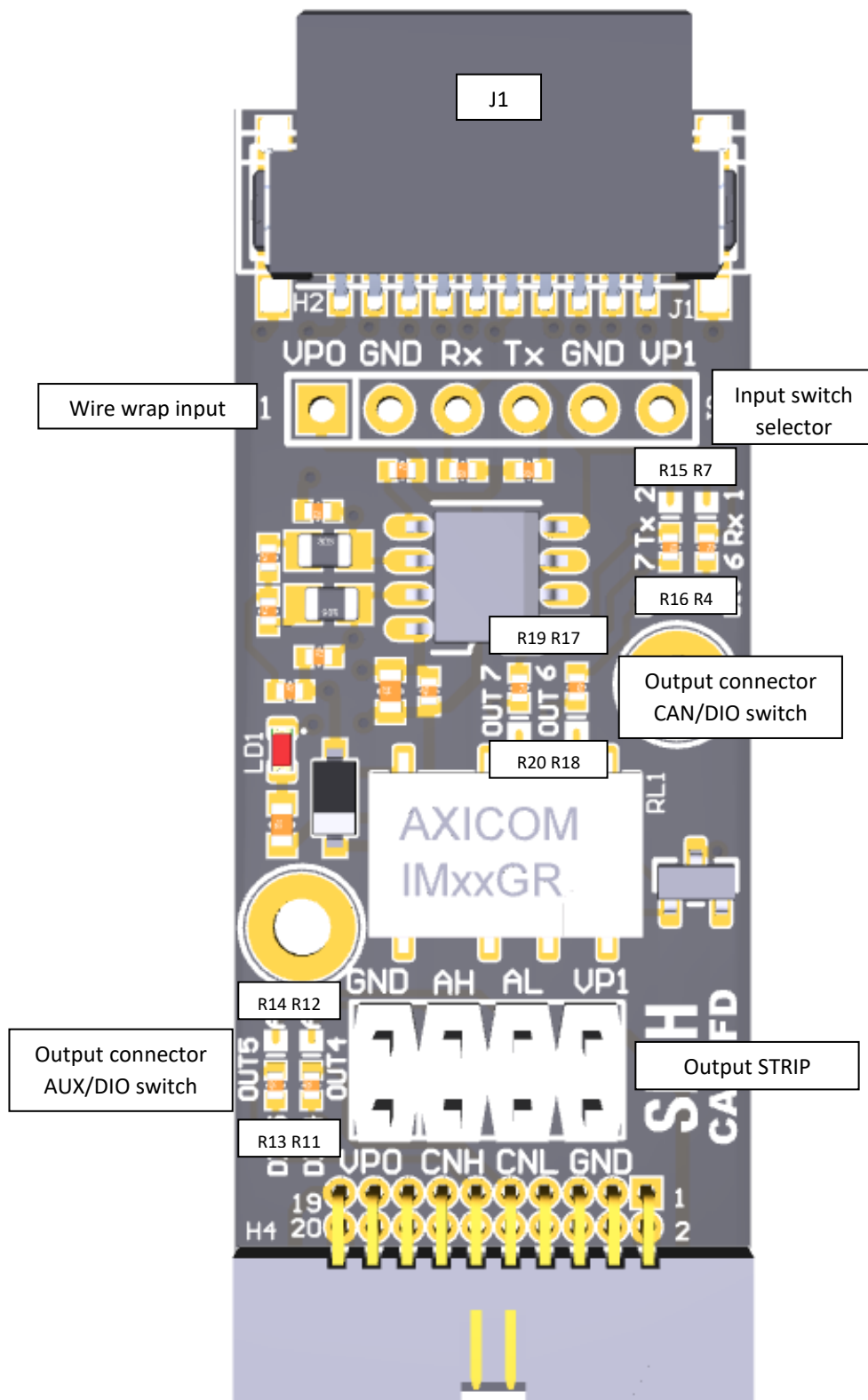


In this configuration, the board may be eventually powered through V_CAN or through VPROG1 power supply.

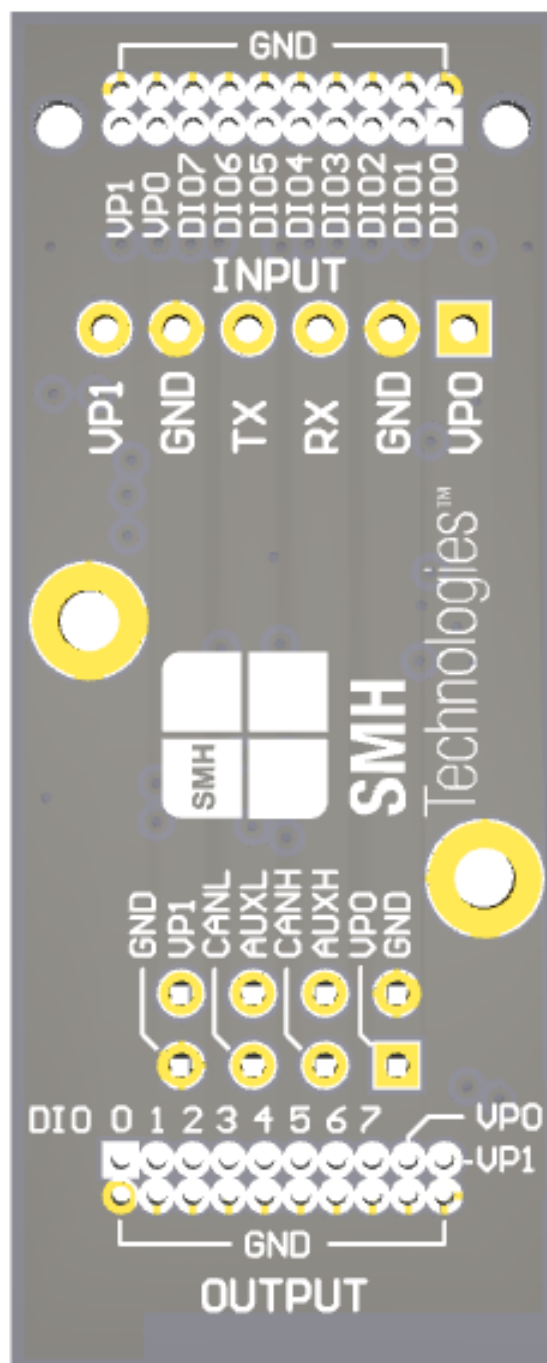
V_CAN/VPROG0 must be set on FlashRunner 2.0 at 5V to supply the adapter CAN transceiver (absolute maximum voltage – 6V). If needed, VPROG1 may be set as auxiliary power supply in the range 6V-13.5V. A maximum of 200 mA of current absorption is supported for each voltage end for each channel.

See next chapters for connectors details.

SMH CAN-FD Adapter Front View



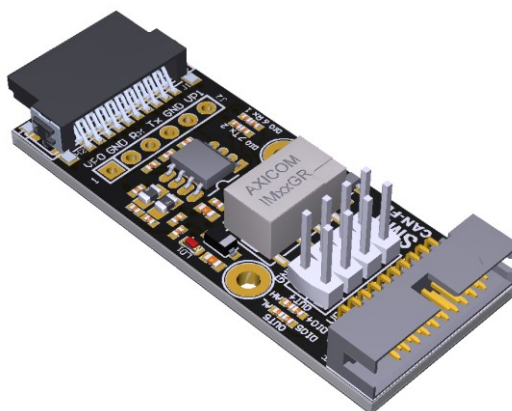
SMH CAN-FD Adapter Back View



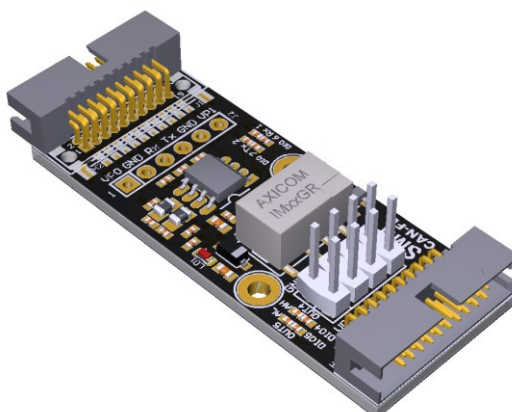
SMH CAN-FD Adapter Available Configurations

There are three possible adapter configurations based on the connectors mounted on the board:

SMH CAN-FD Adapter ADP-D-BUS-DIRPLUG



SMH CAN-FD Adapter ADP-D-BUS-PH

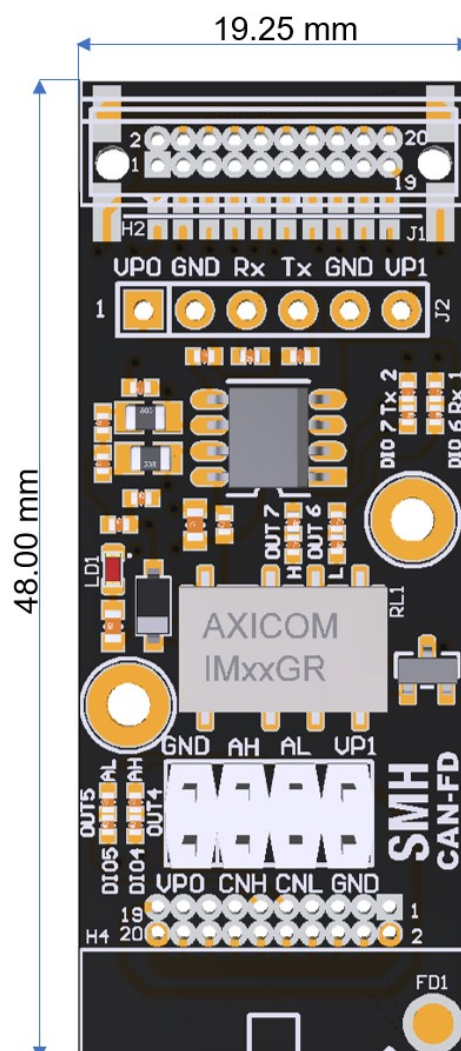
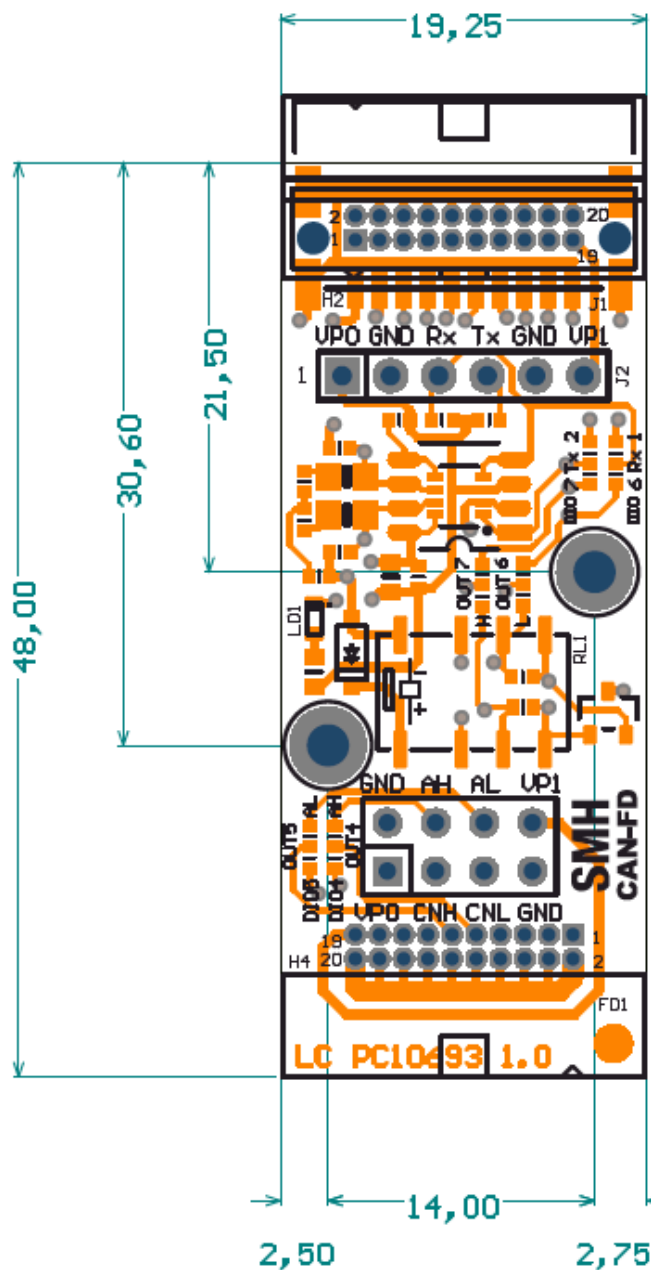


SMH CAN-FD Adapter ADP-D-BUS-WW

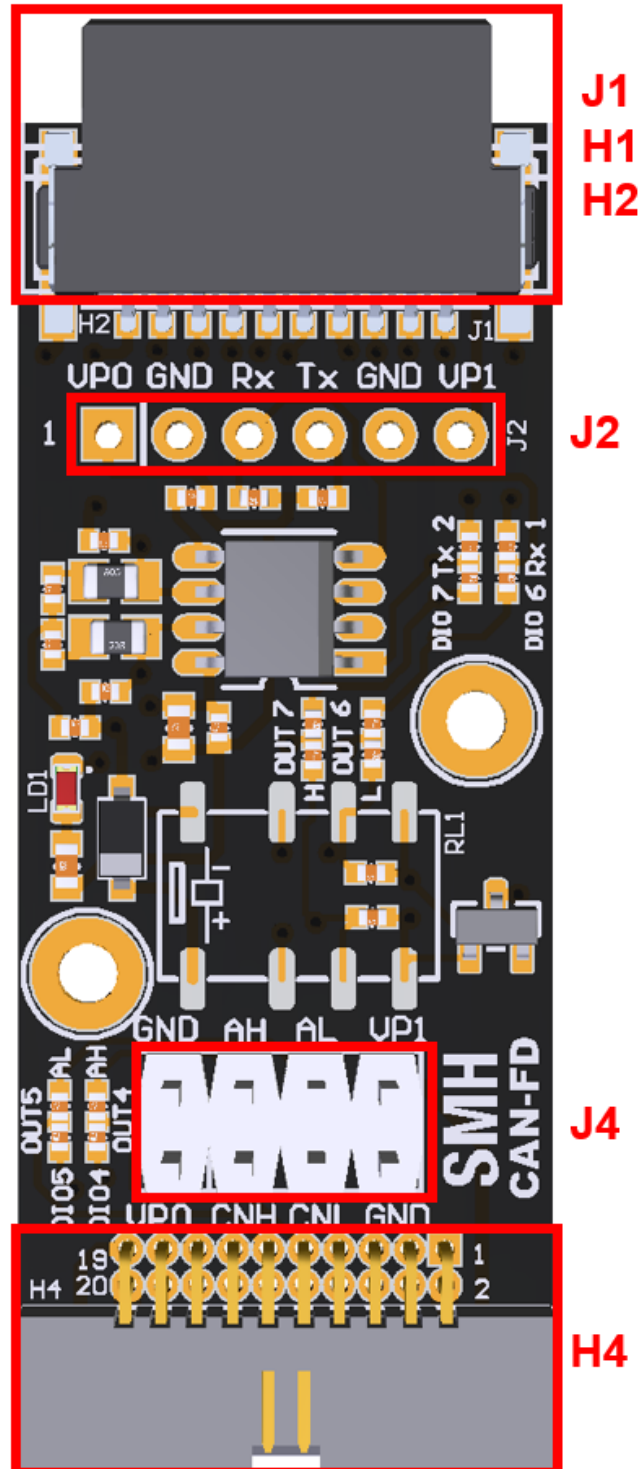


SMH CAN-FD Adapter Board Dimension

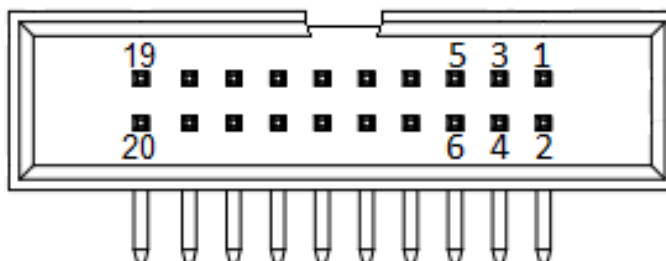
Board dimension are expressed in millimetres [mm].



SMH CAN-FD Adapter Connections



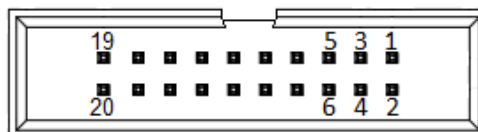
SMH CAN-FD Adapter Input connector H1



Pin #	Signal Name	Input/Output or Power	Description
19	VPROG1	P	Programmable Voltage 1 – VP1
20	VPROG1_GND	-	Ground – GND
17	VPROG0	P	Programmable Voltage 0 – VP0
18	VPROG0_GND	-	Ground – GND
15	DIO7	I/O	Digital Input-Output 7
16	DIO7_GND	-	Ground – GND
13	DIO6	I/O	Digital Input-Output 6
14	DIO6_GND	-	Ground – GND
11	DIO5	I/O	Digital Input-Output 5
12	DIO5_GND	-	Ground – GND
9	DIO4	I/O	Digital Input-Output 4
10	DIO4_GND	-	Ground – GND
7	DIO3	I	Digital Input-Output 3
8	DIO3_GND	-	Ground – GND
5	DIO2	I	Digital Input – TX data signal
6	DIO2_GND	-	Ground – GND
3	DIO1	O	Digital Output – RX data signal
4	DIO1_GND	-	Ground – GND
1	DIO0	I/O	Digital Input-Output 0
2	DIO0_GND	-	Ground – GND

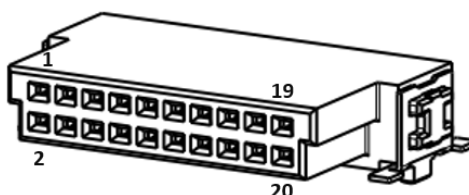
The input connector H1 is a right-angle 20-position 2-row male connector 1.27mm pitch (e.g., CNC Tech 3221-20-0200-00). Only the signals in bold are mandatory for a proper connection between FlashRunner 2.0 and the adapter board input connector.

SMH CAN-FD Adapter Input connector H2



The input connector **H2** is a vertical 20-position 2-row male connector 1.27mm pitch (e.g., CNC 3220-20-0100-00). Please refer to H1 connector section for the pinout specification.

SMH CAN-FD Adapter Input connector J1



The input connector **J1** is a right-angle 20-position 2-row female connector 1.27mm pitch (e.g., Harwin M55-6102042R; compatible with CNC Tech 3221-20-0200-00).

Please refer to **H1** connector section for the pinout specification.

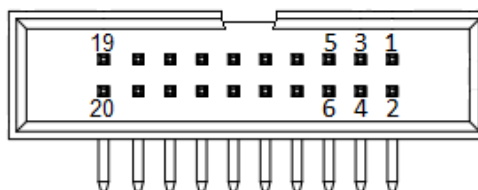
SMH CAN-FD Adapter Input connector J2



Pin #	Signal Name	Input/Output or Power	Description
1	VP0 – V_CAN	P	Power supply CAN transceiver
2	GND	-	Ground – GND
3	DIO1 - RX	I	RX signal from CAN transceiver – DIO1
4	DIO2 - TX	O	TX signal from CAN transceiver – DIO2
5	GND	-	Ground – GND
6	VP1	P	Auxiliary Power Supply

The input connector **J2** is a vertical 6-position 1-row male connector 2.54mm pitch (e.g., WE 61300611121). Only the signals highlighted in the picture are mandatory for a proper connection of the adapter board output connector to the target device board.

SMH CAN-FD Adapter Output connector H4



Pin #	Signal Name	Input/Output or Power	Description
1	DIO0	I/O	Digital Input-Output 0
2	DIO0_GND	-	Ground – GND
3	CAN_H	I/O	CAN differential bus (High)
4	DIO1_GND	-	Ground – GND
5	CAN_L	I/O	CAN differential bus (Low)
6	DIO2_GND	-	Ground – GND
7	DIO3	I/O	Digital Input-Output 3
8	DIO3_GND	-	Ground – GND
9	DIO4	I/O	Digital Input-Output 4
10	DIO4_GND	-	Ground – GND
11	DIO5	I/O	Digital Input-Output 5
12	DIO5_GND	-	Ground – GND
13	DIO6	I/O	Digital Input-Output 6
14	DIO6_GND	-	Ground – GND
15	DIO7	I/O	Digital Input-Output 7
16	DIO7_GND	-	Ground – GND
17	V_CAN	P	Programmable Voltage 0 – VP0 – V_CAN
18	V_CAN_GND	-	Ground – GND
19	VPROG1	P	Programmable Voltage 1 – VP1
20	VPROG1_GND	-	Ground – GND

The output connector **H4** is a right-angle 20-position 2-row male connector 1.27mm pitch (e.g. CNC Tech 3221-20-0200-00). Only the signals in bold are mandatory for a proper connection between FlashRunner 2.0 and the adapter board input connector.

SMH CAN-FD Adapter Output connector J4



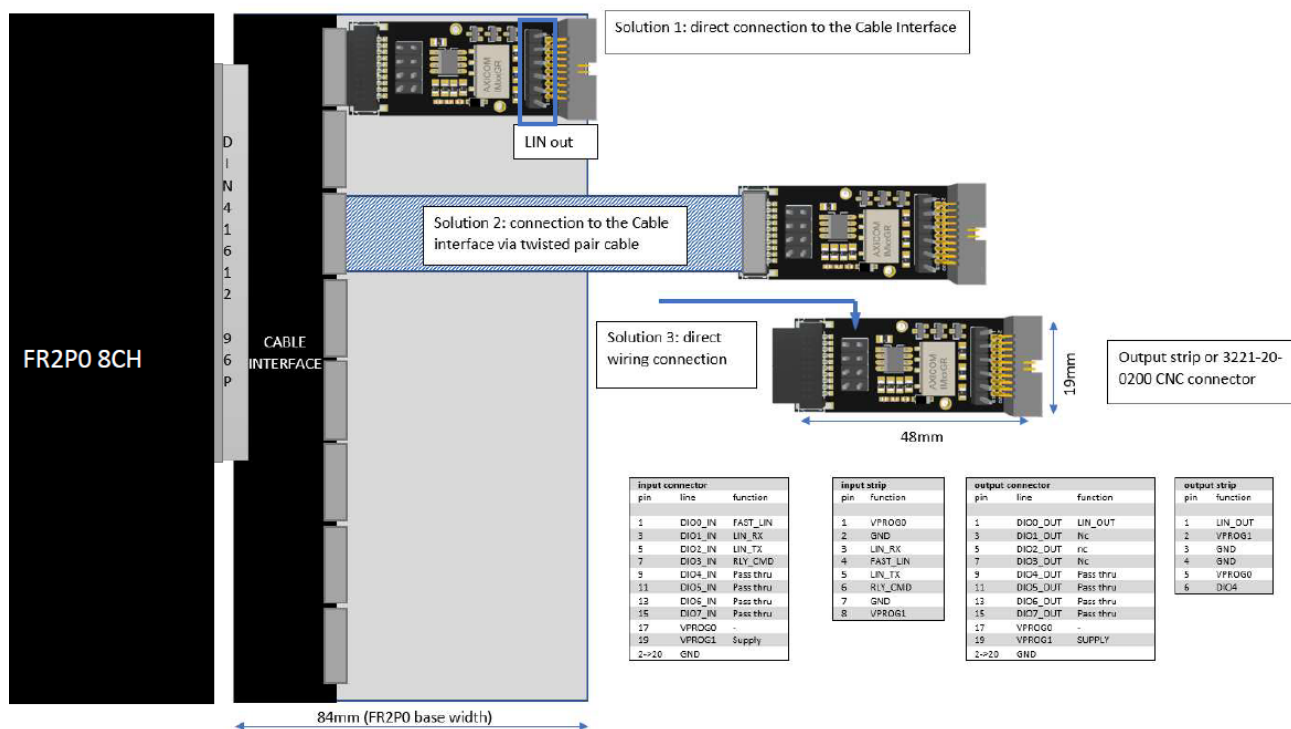
Pin #	Signal Name	Input/Output or Power	Description
1	VP0 – V_CAN	P	CAN voltage - 5V
2	GND	-	Ground – GND
3	CAN_H	I/O	CAN differential bus (High)
4	AUX_H	I/O	CAN Auxiliary (High) – not used
5	CAN_L	I/O	CAN differential bus (Low)
6	AUX_L	I/O	CAN Auxiliary (Low) – not used
7	GND	-	Ground – GND
8	VP1 – VPROG1	P	Auxiliary Power Supply

The output connector **J4** is a vertical 8-position 2-row male connector 2.54 mm pitch.

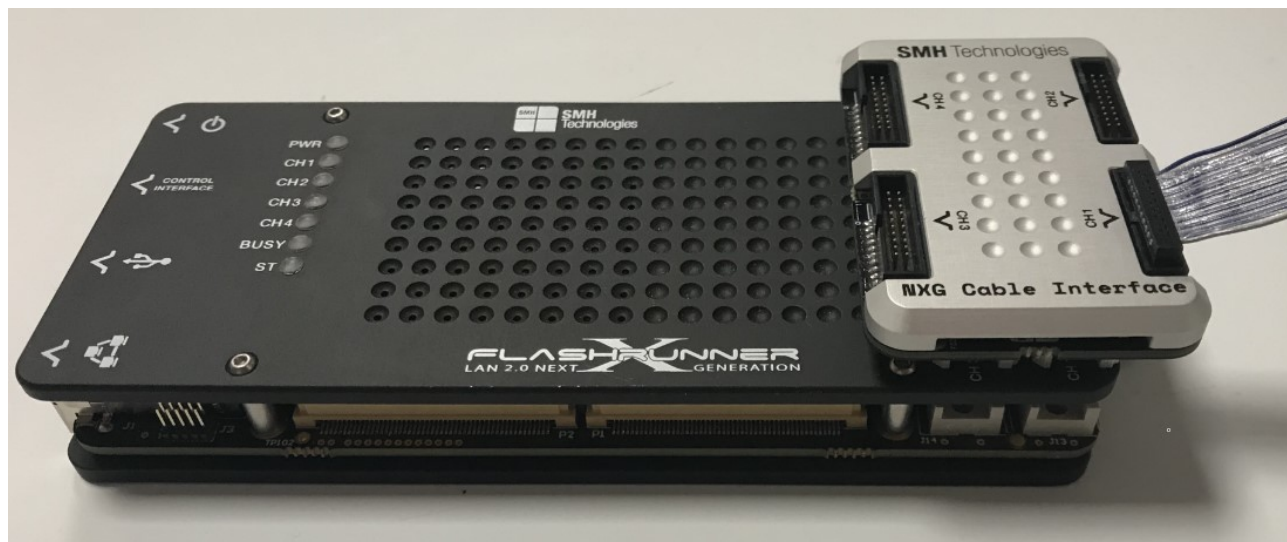
Only the signals highlighted in the picture are mandatory for a proper connection of the adapter board output connector to the target device board.

IO1 and IO2 are the same signal, you just need to connect one of them.

SMH CAN-FD Adapter Interconnection Example



Cable interface with 20 pin CNC connector is available also for the the FR2P0 NXG:



SMH CAN-FD Adapter Typical Integration

The External Hardware designed by SMH Technologies allows matching the needs of the user in terms of integration, selecting carefully the Input/Output connectors.

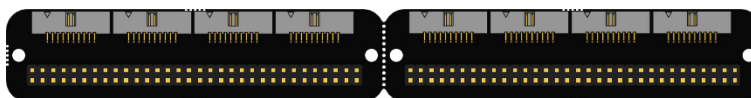
The solutions presented in this chapter are available for both FlashRunner 2.0 (8 and 16 channels) and FlashRunner NXG, except for the ones with the J2 connector because a special Cable Interface is necessary. Those solutions are only available for FlashRunner 2.0.

To have the best integration possible, the module can be integrated also with other SMH tools:

FRCABLE: special cables of length up to 1 m, to be plugged into **J1** or **J3** connectors as Input or Output, and the pinstrip Header or the Cable Interface



Pinstrip Header: connects the output of the External Hardware to the pinstrip using the **FRCABLE**. Then wiring on the pinstrip the final connection to the target can be managed.



Cable Interface: a special cable interface (**FR2POINTF08_ADP**) to connect the External Hardware directly to it using the **H1** connector.

The standard Cable Interface, instead, can be used with **FRCABLE** on the **J1** connector.

It can be mixed with the Relay Barrier and the Demultiplexer.

Please note that a specifically designed Cable Interface is necessary to use the **J1** connector and it is available only for FlashRunner 2.0.



In the next chapters, the most common integrations are explained.

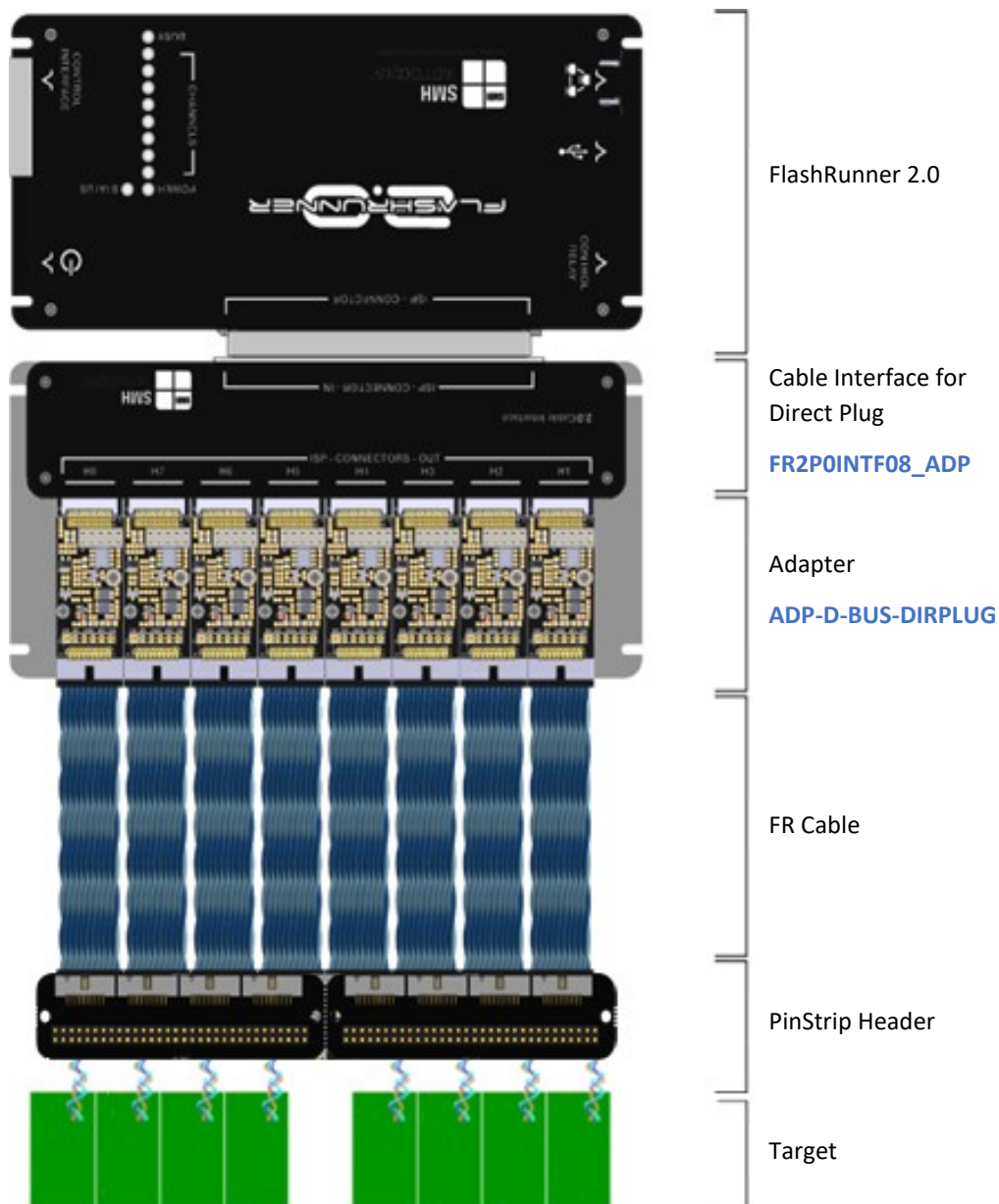
The ones presented are not the only solutions.

If necessary it is possible to ask for different integration and SMH Technologies' Technical Team will evaluate it.

SMH CAN-FD Adapter Direct Plug

With the integration in the picture below, the user directly connects the External Hardware to the Cable Interface, which is directly connected to the FlashRunner 2.0, using the J1 connector.

Then, on the output of the External Hardware, the FRCABLE is connected to the H4 connector. At the end there is the pinstrip header from which the user can perform the final wiring to the target.

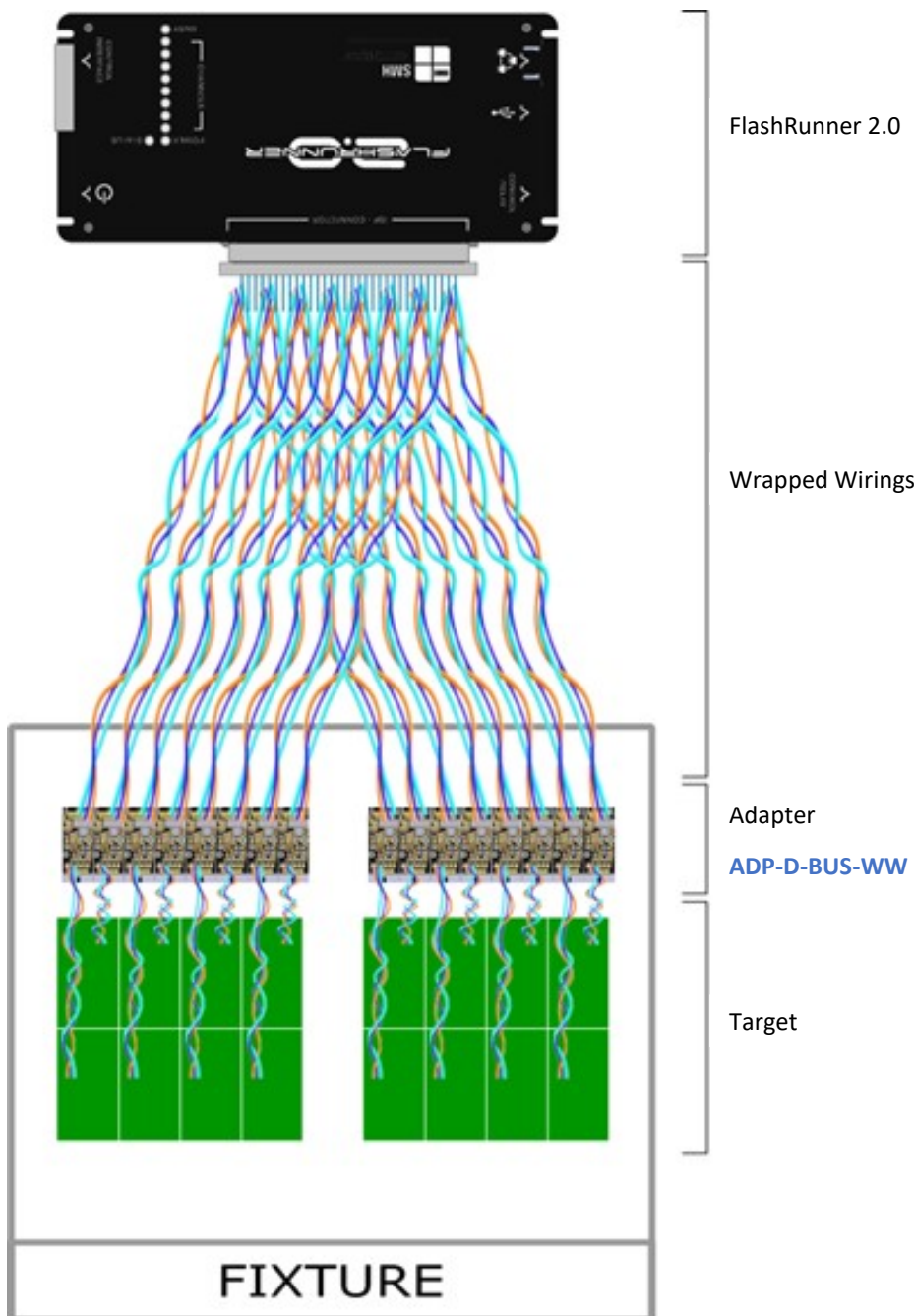


SMH CAN-FD Adapter Wire Wrapping

With the integration in the picture below, the user connects the External Hardware to the FlashRunner 2.0 wrapping the wires directly to the ISP Connector.

Then, on the output of the External Hardware, the customer can perform the final wiring from connector J4 to the target. Typically, with this solution, the adapters are placed on the fixture.

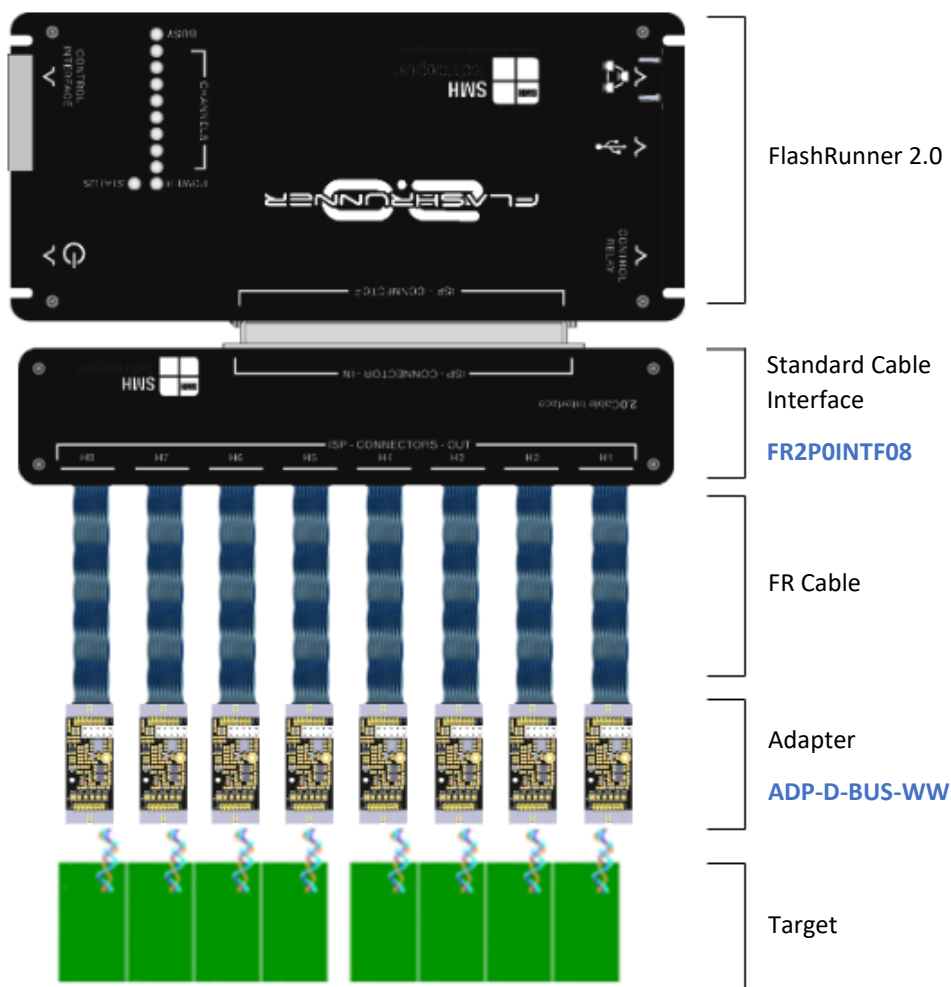
This way the integration is not bounded to a specific project because by changing the fixture, the customer can flash other targets.



SMH CAN-FD Adapter Peripherals

With the integration in the picture below, the user connects the External Hardware to the Cable Interface using the FRCABLE on connector J1.

Then, on the output of the External Hardware, the customer can perform the final wiring from connector J4 to the target.



Melexis MeLiBu Driver Parameters

The additional parameters are used to configure some specific options inside MLXMELIBU driver.

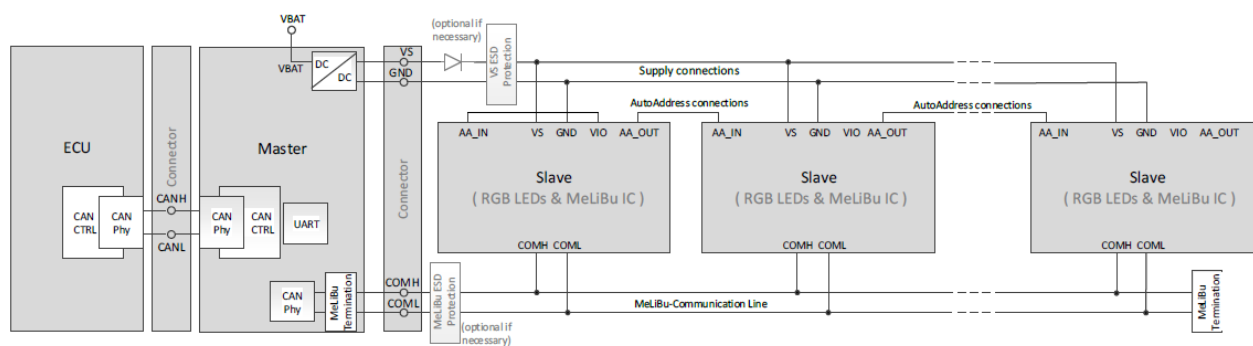
#TCSETPAR BROADCAST_EXECUTION

Syntax: `#TCSETPAR BROADCAST_EXECUTION <Enable Broadcast>`
 <Enable Broadcast> Accepted parameters are Yes or No

Description: Select if you want to execute a Broadcast Execution or if you want to communicate with a single Melexis target into the daisy chain

Note: Default value is YES

The following picture shows the connections between MeLiBu master and slaves.



#TCSETPAR TARGET_DEVICE

Syntax: `#TCSETPAR TARGET_DEVICE <Value>`
 <Value> Value must be between 1 and 59

Description: With this parameter the Broadcast execution is automatically disabled and the subsequent commands are performed only on the selected device in the chain.

Note: No Default Value

Melexis MeLiBu Driver Commands

Melexis MeLiBu Available Commands

Here you can find the complete list of all available commands based on Melexis MeLiBu procedure:

COMMANDS	BROADCAST MODE	SINGLE TARGET MODE	OTHER PARAMETERS
CONNECT	YES	YES	NO
FLASH			
MASSERASE F	YES	YES	NO
BLANKCHECK F	NO	YES	START ADDRESS - SIZE
PROGRAM F	YES	YES	NO
VERIFY F R	NO	YES	START ADDRESS - SIZE
VERIFY F S (BIST)	YES	YES	NO
READ F	NO	YES	START ADDRESS - SIZE
DUMP F	NO	YES	START ADDRESS - SIZE
EEPROM			
MASSERASE E	YES	YES	NO
BLANKCHECK E	NO	YES	START ADDRESS - SIZE
PROGRAM E	YES	YES	NO
VERIFY E R	NO	YES	START ADDRESS - SIZE
VERIFY E S (BIST)	NO	NO	NO
READ E	NO	YES	START ADDRESS - SIZE
DUMP E	NO	YES	START ADDRESS - SIZE

Verify F R -> Verify Readout method

Verify F S -> Verify Checksum method (Melexis BIST)

#TPCMD CONNECT

#TPCMD CONNECT

Connect function, power on target device and entry.

All the devices in the chain are move into programming mode (Enter Programming Mode Frame).

All the devices' NAD in the chain is reset and a new one is assigned progressively starting from the value 0x4.

The whole connect procedure is always performed in Broadcast mode.

#TPCMD MASSERASE

#TPCMD MASSERASE <F/E>

This command can be executed both in Broadcast and in Single Device mode.

MASSERASE F: only for FLASH memory of target/all device(s).

MASSERASE E: only for EEprom memory of target/all device(s).

#TPCMD BLANKCHECK

#TPCMD BLANKCHECK <F/E> or BLANKCHECK <F/E> <start address> <size>

This command can be executed only in Single Device mode.

BLANKCHECK F: only for FLASH memory of target device.

BLANKCHECK E: only for EEPROM memory of target device.

BLANKCHECK F < start address > < size >: only for selected part of FLASH memory.

BLANKCHECK E < start address > < size >: only for selected part of EEPROM memory.

#TPCMD PROGRAM

#TPCMD PROGRAM <F/E>

This command can be executed both in Broadcast and in Single Device mode.

PROGRAM F: only for FLASH memory of target/all device(s).

PROGRAM E: only for EEPROM memory of target/all device(s).

#TPCMD VERIFY

#TPCMD VERIFY <F/E> <R> or VERIFY <F/E> <R> <start address> <size>

This command can be executed only in Single Device mode.

VERIFY F R: only for FLASH memory of target device.

VERIFY E R: only for EEPROM memory of target device.

VERIFY F R < start address > < size >: only for selected part of FLASH memory.

VERIFY E R < start address > < size >: only for selected part of EEPROM memory.

#TPCMD VERIFY <F> <S>

This command can be executed both in Broadcast and in Single Device mode.

VERIFY F S: only for FLASH memory of target/all device(s) – Melexis BIST method.

#TPCMD READ

#TPCMD READ <F/E> or READ <F/E> <start address> <size>

This command can be executed only in Single Device mode.

READ F: only for FLASH memory of target device.

READ E: only for EEPROM memory of target device.

READ F < start address > < size >: only for selected part of FLASH memory.

READ E < start address > < size >: only for selected part of EEPROM memory.

#TPCMD DUMP

#TPCMD DUMP <F/E> or DUMP <F/E> <start address> <size>

This command can be executed only in Single Device mode.

DUMP F: only for FLASH memory of target device.

DUMP E: only for EEPROM memory of target device.

DUMP F < start address > < size >: only for selected part of FLASH memory.

DUMP E < start address > < size >: only for selected part of EEPROM memory.

#TPCMD DISCONNECT

#TPCMD DISCONNECT

Disconnect function. Power off and exit. Broadcast Reset for all device in the chain.

Melexis MeLiBu Driver Examples

Here you can see a complete example of Melexis MeLiBu projects.

1 - Melexis MeLiBu example Commands

Four MLX81116 in the same chain on one single channel with Broadcast Execution.

```
#TCSETPAR BROADCAST_EXECUTION YES
#TCSETPAR PROTCCLK 1000000
#TCSETPAR PWDOWN 100
#TCSETPAR PWUP 100
#TCSETPAR RSTDOWN 100
#TCSETPAR RSTDRV OPENDRAIN
#TCSETPAR RSTUP 100
#TCSETPAR VPROG0 5000
#TCSETPAR CMODE MELIBU
#TPSETSRC 81116xAC.frb
#TPSTART
#TPCMD CONNECT
#TPCMD MASSERASE F
#TPCMD PROGRAM F
#TPCMD VERIFY F S
#TPCMD DISCONNECT
#TFEND
```

1 - Melexis MeLiBu example Real Time Log

Four MLX81116 in the same chain on one single channel with Broadcast Execution.

```
---#TPCMD CONNECT
Frequency selected is 1 Mbit/s.
Broadcast Enter Programming Mode.
Broadcast Reset NAD.
Broadcast Set NAD.
Found 4 devices in the chain.
Broadcast Request Device Status.
Device n. 1 in chain with NAD 0x04 is MLX81116-xAC.
Device n. 2 in chain with NAD 0x05 is MLX81116-xAC.
Device n. 3 in chain with NAD 0x06 is MLX81116-xAC.
Device n. 4 in chain with NAD 0x07 is MLX81116-xAC.
Time for Connect: 0.127 s.
>|
---#TPCMD MASSERASE F
Broadcast Masserese Flash for all devices in the chain.
Custom Broadcast Write RAM.
Broadcast Execute RAM.
Time for Masserese F: 0.510 s.
>|
---#TPCMD PROGRAM F
FRB CRC32 check passed.
FRB Headers collected.
Broadcast Program Flash for all devices in the chain.
Time for Program F: 1.933 s.
>|
---#TPCMD VERIFY F S
Broadcast Verify Flash BIST for all devices in the chain.
Broadcast Check Flash CRC (Internal BIST).
Time for Verify BIST F: 0.012 s.
>|
---#TPCMD DISCONNECT
Broadcast Reset for all devices in the chain.
>|
```

1 - Melexis MeLiBu example Programming Times

Four MLX81116 in the same chain on one single channel with Broadcast Execution.

Operation	Timings FlashRunner 2.0
Time for Connect	0.127 s
Time for Masserase	0,510 s
Time for Program Flash	1,933 s
Time for Verify BIST Flash	0.012 s
Cycle Time	00:02.636 s

2 - Melexis MeLiBu example Commands

Four MLX81116 in the same chain on one single channel with Single Target Execution.

```
#TCSETPAR BROADCAST_EXECUTION NO
#TCSETPAR PROTCCLK 1000000
#TCSETPAR PWDOWN 100
#TCSETPAR PWUP 100
#TCSETPAR RSTDOWN 100
#TCSETPAR RSTDRV OPENDRAIN
#TCSETPAR RSTUP 100
#TCSETPAR VPROG0 5000
#TCSETPAR CMODE MELIBU
#TPSETSRC 81116xAC.frb
#TPSTART
#TPCMD CONNECT

; ***** #TCSETPAR TARGET_DEVICE set automatically BROADCAST_EXECUTION to NO. *****

; ----- TARGET DEVICE 1 -----

#TCSETPAR TARGET_DEVICE 1

;---- FLASH COMMANDS
#TPCMD MASSERASE F
#TPCMD BLANKCHECK F
#TPCMD PROGRAM F
#TPCMD VERIFY F R
#TPCMD VERIFY F S
#TPCMD READ F
#TPSETDUMP DEVICE_1_F.bin
#TPCMD DUMP F

;---- EEPROM COMMANDS
#TPCMD MASSERASE E
#TPCMD BLANKCHECK E
;#TPCMD PROGRAM E
;#TPCMD VERIFY E R
#TPCMD READ E
#TPSETDUMP DEVICE_1_E.bin
#TPCMD DUMP E

; ----- TARGET DEVICE 2 -----

#TCSETPAR TARGET_DEVICE 2

;---- FLASH COMMANDS
#TPCMD MASSERASE F
#TPCMD BLANKCHECK F
#TPCMD PROGRAM F
```

```
#TPCMD VERIFY F R
#TPCMD VERIFY F S
#TPCMD READ F
#TPSETDUMP DEVICE_2_F.bin
#TPCMD DUMP F

;---- EEPROM COMMANDS
#TPCMD MASSERASE E
#TPCMD BLANKCHECK E
;#TPCMD PROGRAM E
;#TPCMD VERIFY E R
#TPCMD READ E
#TPSETDUMP DEVICE_2_E.bin
#TPCMD DUMP E

; ----- TARGET DEVICE 3 -----

#TCSETPAR TARGET_DEVICE 3

;---- FLASH COMMANDS
#TPCMD MASSERASE F
#TPCMD BLANKCHECK F
#TPCMD PROGRAM F
#TPCMD VERIFY F R
#TPCMD VERIFY F S
#TPCMD READ F
#TPSETDUMP DEVICE_3_F.bin
#TPCMD DUMP F

;---- EEPROM COMMANDS
#TPCMD MASSERASE E
#TPCMD BLANKCHECK E
;#TPCMD PROGRAM E
;#TPCMD VERIFY E R
#TPCMD READ E
#TPSETDUMP DEVICE_3_E.bin
#TPCMD DUMP E

; ----- TARGET DEVICE 4 -----

#TCSETPAR TARGET_DEVICE 4

;---- FLASH COMMANDS
#TPCMD MASSERASE F
#TPCMD BLANKCHECK F
#TPCMD PROGRAM F
#TPCMD VERIFY F R
#TPCMD VERIFY F S
#TPCMD READ F
#TPSETDUMP DEVICE_4_F.bin
#TPCMD DUMP F

;---- EEPROM COMMANDS
#TPCMD MASSERASE E
#TPCMD BLANKCHECK E
;#TPCMD PROGRAM E
;#TPCMD VERIFY E R
#TPCMD READ E
#TPSETDUMP DEVICE_4_E.bin
#TPCMD DUMP E

; -----

#TPCMD DISCONNECT
#TFEND
```

2 - Melexis MeLiBu example Real Time Log

Four MLX81116 in the same chain on one single channel with Single Target Execution.

```
---#TPCMD CONNECT
Frequency selected is 1 Mbit/s.
Broadcast Enter Programming Mode.
Broadcast Reset NAD.
Broadcast Set NAD.
Found 4 devices in the chain.
Broadcast Request Device Status.
Device n. 1 in chain with NAD 0x04 is MLX81116-xAC.
Device n. 2 in chain with NAD 0x05 is MLX81116-xAC.
Device n. 3 in chain with NAD 0x06 is MLX81116-xAC.
Device n. 4 in chain with NAD 0x07 is MLX81116-xAC.
Time for Connect: 0.125 s.
>|
---#TCSETPAR TARGET_DEVICE 1
>|
---#TPCMD MASSERASE F
Masserase Flash for MLX81116-xAC device with NAD 0x04.
Custom Broadcast Write RAM.
Broadcast Execute RAM.
Time for Masserase F: 0.508 s.
>|
---#TPCMD BLANKCHECK F
Blankcheck Flash for MLX81116-xAC device with NAD 0x04.
Time for Blankcheck F: 0.529 s.
>|
---#TPCMD PROGRAM F
Program Flash for MLX81116-xAC device with NAD 0x04.
Time for Program F: 1.838 s.
>|
---#TPCMD VERIFY F R
Verify Flash Readout for MLX81116-xAC device with NAD 0x04.
Time for Verify Readout F: 0.528 s.
>|
---#TPCMD VERIFY F S
Broadcast Verify Flash BIST for MLX81116-xAC device with NAD 0x04.
Broadcast Check Flash CRC (Internal BIST).
Time for Verify BIST F: 0.012 s.
>|
---#TPCMD READ F
Read Flash for MLX81116-xAC device with NAD 0x04.
Time for Read F: 0.591 s.
>|
---#TPSETDUMP DEVICE_1_F.bin
>|
---#TPCMD DUMP F
Dump Flash for MLX81116-xAC device with NAD 0x04.
Time for Dump F: 0.591 s.
>|
---#TPCMD MASSERASE E
Masserase EEPROM for MLX81116-xAC device with NAD 0x04.
Time for Masserase E: 0.591 s.
>|
---#TPCMD BLANKCHECK E
Blankcheck EEPROM for MLX81116-xAC device with NAD 0x04.
Time for Blankcheck E: 0.015 s.
>|
---#TPCMD READ E
Read EEPROM for MLX81116-xAC device with NAD 0x04.
Time for Read E: 0.016 s.
>|
---#TPSETDUMP DEVICE_1_E.bin
>|
---#TPCMD DUMP E
Dump EEPROM for MLX81116-xAC device with NAD 0x04.
Time for Dump E: 0.056 s.
>|
---#TCSETPAR TARGET_DEVICE 2
>|
---#TPCMD MASSERASE F
Masserase Flash for MLX81116-xAC device with NAD 0x05.
Custom Broadcast Write RAM.
Broadcast Execute RAM.
Time for Masserase F: 0.509 s.
>|
```

```

---#TPCMD BLANKCHECK F
Blankcheck Flash for MLX81116-xAC device with NAD 0x05.
Time for Blankcheck F: 0.529 s.
>|
---#TPCMD PROGRAM F
Program Flash for MLX81116-xAC device with NAD 0x05.
Time for Program F: 1.847 s.
>|
---#TPCMD VERIFY F R
Verify Flash Readout for MLX81116-xAC device with NAD 0x05.
Time for Verify Readout F: 0.528 s.
>|
---#TPCMD VERIFY F S
Broadcast Verify Flash BIST for MLX81116-xAC device with NAD 0x05.
Broadcast Check Flash CRC (Internal BIST).
Time for Verify BIST F: 0.012 s.
>|
---#TPCMD READ F
Read Flash for MLX81116-xAC device with NAD 0x05.
Time for Read F: 0.618 s.
>|
---#TPSETDUMP DEVICE_2_F.bin
>|
---#TPCMD DUMP F
Dump Flash for MLX81116-xAC device with NAD 0x05.
Time for Dump F: 0.591 s.
>|
---#TPCMD MASSERASE E
Masserase EEPROM for MLX81116-xAC device with NAD 0x05.
Time for Masserase E: 0.593 s.
>|
---#TPCMD BLANKCHECK E
Blankcheck EEPROM for MLX81116-xAC device with NAD 0x05.
Time for Blankcheck E: 0.016 s.
>|
---#TPCMD READ E
Read EEPROM for MLX81116-xAC device with NAD 0x05.
Time for Read E: 0.017 s.
>|
---#TPSETDUMP DEVICE_2_E.bin
>|
---#TPCMD DUMP E
Dump EEPROM for MLX81116-xAC device with NAD 0x05.
Time for Dump E: 0.056 s.
>|
---#TCSETPAR TARGET_DEVICE 3
>|
---#TPCMD MASSERASE F
Masserase Flash for MLX81116-xAC device with NAD 0x06.
Custom Broadcast Write RAM.
Broadcast Execute RAM.
Time for Masserase F: 0.506 s.
>|
---#TPCMD BLANKCHECK F
Blankcheck Flash for MLX81116-xAC device with NAD 0x06.
Time for Blankcheck F: 0.527 s.
>|
---#TPCMD PROGRAM F
Program Flash for MLX81116-xAC device with NAD 0x06.
Time for Program F: 1.837 s.
>|
---#TPCMD VERIFY F R
Verify Flash Readout for MLX81116-xAC device with NAD 0x06.
Time for Verify Readout F: 0.527 s.
>|
---#TPCMD VERIFY F S
Broadcast Verify Flash BIST for MLX81116-xAC device with NAD 0x06.
Broadcast Check Flash CRC (Internal BIST).
Time for Verify BIST F: 0.013 s.
>|
---#TPCMD READ F
Read Flash for MLX81116-xAC device with NAD 0x06.
Time for Read F: 0.633 s.
>|
---#TPSETDUMP DEVICE_3_F.bin
>|
---#TPCMD DUMP F
Dump Flash for MLX81116-xAC device with NAD 0x06.
Time for Dump F: 0.590 s.
>|

```




```
---#TPCMD MASSERASE E
Masserage EEPROM for MLX81116-xAC device with NAD 0x06.
Time for Masserage E: 0.589 s.
>|
---#TPCMD BLANKCHECK E
Blankcheck EEPROM for MLX81116-xAC device with NAD 0x06.
Time for Blankcheck E: 0.015 s.
>|
---#TPCMD READ E
Read EEPROM for MLX81116-xAC device with NAD 0x06.
Time for Read E: 0.017 s.
>|
---#TPSETDUMP DEVICE_3_E.bin
>|
---#TPCMD DUMP E
Dump EEPROM for MLX81116-xAC device with NAD 0x06.
Time for Dump E: 0.056 s.
>|
---#TCSETPAR TARGET_DEVICE 4
>|
---#TPCMD MASSERASE F
Masserage Flash for MLX81116-xAC device with NAD 0x07.
Custom Broadcast Write RAM.
Broadcast Execute RAM.
Time for Masserage F: 0.507 s.
>|
---#TPCMD BLANKCHECK F
Blankcheck Flash for MLX81116-xAC device with NAD 0x07.
Time for Blankcheck F: 0.526 s.
>|
---#TPCMD PROGRAM F
Program Flash for MLX81116-xAC device with NAD 0x07.
Time for Program F: 1.838 s.
>|
---#TPCMD VERIFY F R
Verify Flash Readout for MLX81116-xAC device with NAD 0x07.
Time for Verify Readout F: 0.527 s.
>|
---#TPCMD VERIFY F S
Broadcast Verify Flash BIST for MLX81116-xAC device with NAD 0x07.
Broadcast Check Flash CRC (Internal BIST).
Time for Verify BIST F: 0.012 s.
>|
---#TPCMD READ F
Read Flash for MLX81116-xAC device with NAD 0x07.
Time for Read F: 0.633 s.
>|
---#TPSETDUMP DEVICE_4_F.bin
>|
---#TPCMD DUMP F
Dump Flash for MLX81116-xAC device with NAD 0x07.
Time for Dump F: 0.590 s.
>|
---#TPCMD MASSERASE E
Masserage EEPROM for MLX81116-xAC device with NAD 0x07.
Time for Masserage E: 0.590 s.
>|
---#TPCMD BLANKCHECK E
Blankcheck EEPROM for MLX81116-xAC device with NAD 0x07.
Time for Blankcheck E: 0.015 s.
>|
---#TPCMD READ E
Read EEPROM for MLX81116-xAC device with NAD 0x07.
Time for Read E: 0.016 s.
>|
---#TPSETDUMP DEVICE_4_E.bin
>|
---#TPCMD DUMP E
Dump EEPROM for MLX81116-xAC device with NAD 0x07.
Time for Dump E: 0.055 s.
>|
---#TPCMD DISCONNECT
Broadcast Reset for all devices in the chain.
```

Melexis MeLiBu Driver Changelog

Info about driver versions prior to 4.00

All driver versions prior to 4.00 are to be considered obsolete, please update your driver to the latest version.

Info about driver version 4.00 - 02/05/2021

Supported MLX81116-xAC (Revision AC).

Info about driver version 4.01 - 29/06/2021

Supported MLX81116-xAE (Revision AE).

Info about driver version 4.02 - 19/07/2021

Internal update for FPGA name and version tracking.

Info about driver version 4.03 - 12/08/2021

Fixed Last Bootloader Status error print into Log.

Internal upgrade of the algorithm, no change to the operations it performs.

Info about driver version 4.04 - 25/08/2021

Internal upgrade of the algorithm, no change to the operations it performs.

Info about driver version 4.05 - 04/11/2021

Internal update, upgraded management for MELIBU FPGA reset.

Info about driver version 4.06 - 06/05/2022

Align the device part numbers with the Melexis standard.

Added new MELIBU FPGA which has better performance.

Info about driver version 4.07 - 16/06/2022

Print current FPGA version loaded into TPSTART command.

Upgraded internal code to align all drivers to new standards.

Info about driver version 5.00 - 01/08/2022

Added FPGA for new FlashRunner 2.0 models.

Info about driver version 5.01 - 31/08/2023

Internal driver update.