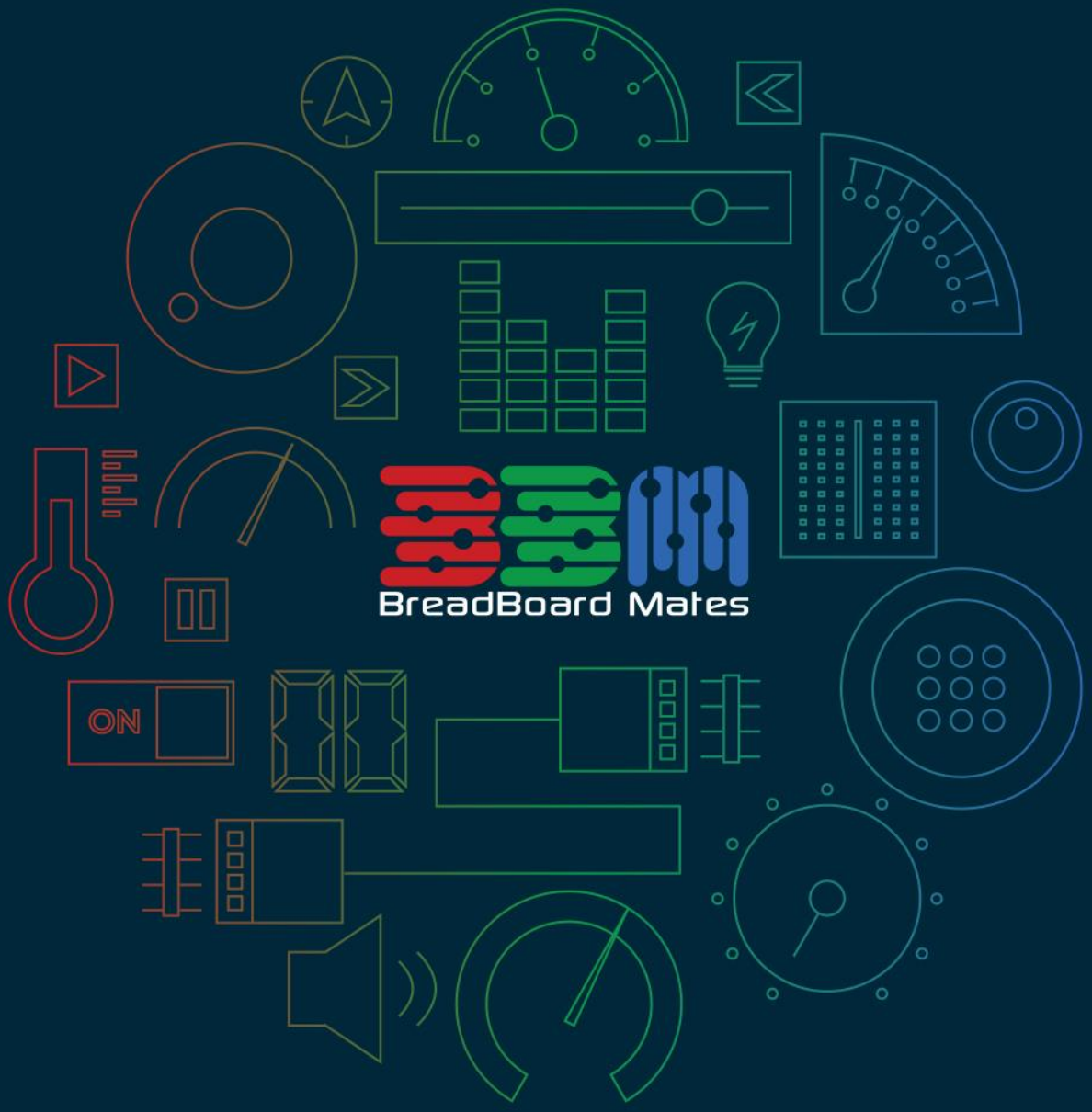


BBM MB Adaptor
DATASHEET

Document Revision: 1.1
Document Date: 13/04/2022

Content subject to change at any time, please refer to www.breadboardmates.com for the latest revision.

Table of Contents

Document Revision History

Revision Number	Date	Description
0.1	30/06/2021	Initial Draft
0.2	19/07/2021	Formatting Update
1.0	28/07/2021	Initial Public Release
1.1	13/04/2022	Update to reflect hardware changes

Hardware Revision History

Revision Number	Date	Description
1.0	25/02/2021	Initial Revision
1.1	13/04/2022	Part number renamed, MatesBUS header added

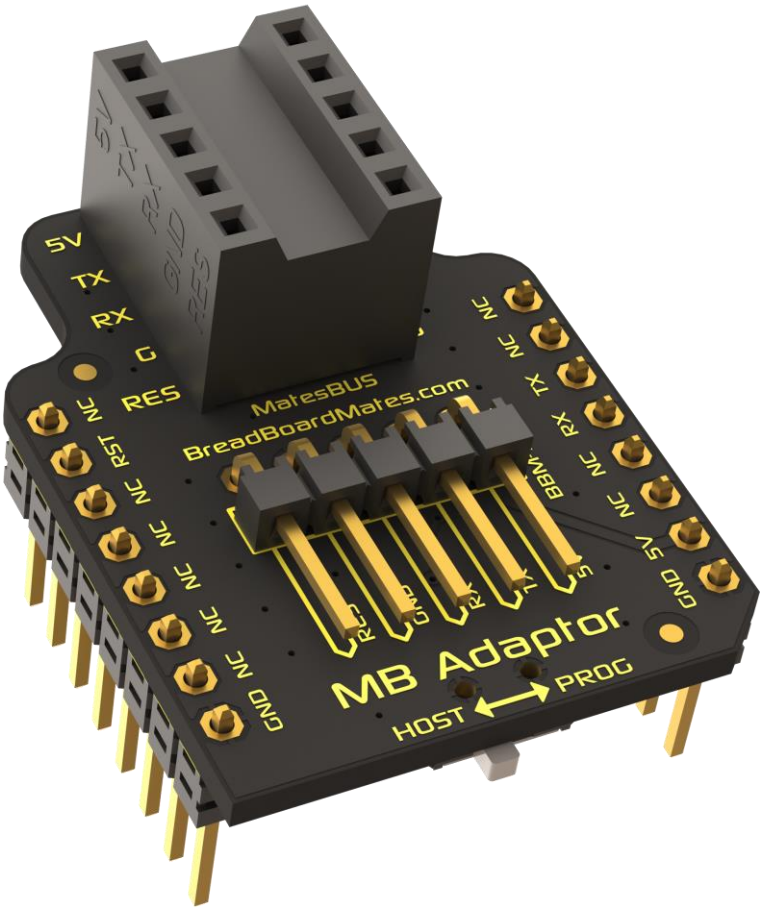
About Breadboard Mates

Breadboard Mates (aka BBM) is an Australian start-up company and was established in 2020 with the aim to bring breadboard friendly display products to the market, cutting down the time and components required to develop or experiment with electronics.

Hobbyist to Professional, BBM products can be utilised for development or education or anything in between. Development of projects / applications is made incredibly easy with the help of the revolutionary Mates Studio IDE.

The Mates Studio IDE is unlike any other, it offers 4 different programming methods with interchangeable pages and widgets, and helps speed up development for stand alone, host driven or PC tethered applications.

Breadboard Mates is constantly working on new product ideas, so keep a watch on the breadboardmates.com website for new product releases.



Product Description

BBM-MB-Adaptor (ref. MB Adaptor) is an adaptor designed to provide development boards/modules which have a MikroBUS Click socket with a MatesBUS interface, to connect products such as the TIMI-96 directly.

MikroBUS and Click Boards are TM's of MikroElektronika.

The MB Adaptor also features a 5-pin programming header, to program the connected device directly through the MB Adaptor using the BBM Programmer, and a selection switch (on the back – accessible from the side) to switch between device programming mode or connection of the device to the Host.

Product Features

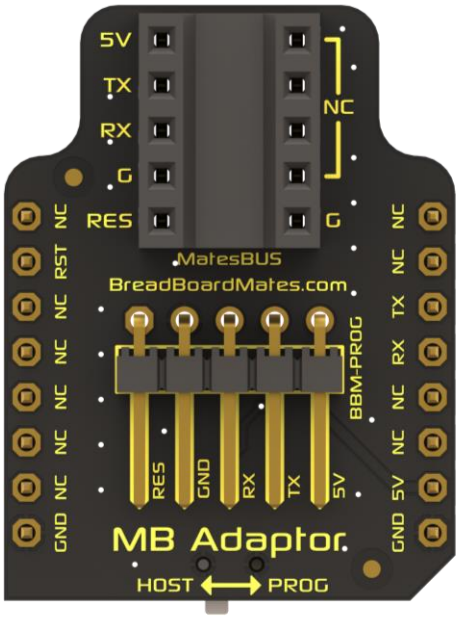
The MB Adaptor connects to the MikroBUS Click interface, breaking out selected pins for use with the MatesBUS. It also features a selector switch, which interrupts the Hosts TX signal, to direct the MatesBUS RX signal to the programming header instead. This allows the MB Adaptor to be left connected to the Host board when the connected device (such as the TIMI-96) is required to be programmed.

The only interface to the MatesBUS is a 3.3V level Asynchronous Serial UART and is used to communicate between the Host and the connected device on the MatesBUS. Reset to the MatesBUS is also connected to the RST of the MikroBUS.

Hardware Detail

The MB Adaptor utilises the BBM MatesBus, which is a unique interface pinout designed to be simple and easy to use.

The MatesBus is made up of 2 rows of 5 pins, 0.1" (2.54mm) pitch, spaced 0.3" (7.62mm) apart, ideal for direct plug into a breadboard, or compatible adaptor or development board.



Hardware Interfaces

The MB Adaptor connects to the MikroBUS Click interface and utilises the Serial UART of the Host to connect the MatesBUS headers.

System Pins

+5V (Device Supply Voltage)
Display supply voltage pin. This pin supplies the MatesBUS with 5VDC from the Host board.

GND (Module Ground)
Device ground pin.

TX (Serial UART Transmit - MatesBUS)
TX of the MatesBUS connects to RX of the Host board, this is the 3.3V Asynchronous Serial UART Transmit for communications between the device connected to the MatesBUS headers and the Host.

RX (Serial UART Receive - MatesBUS)
RX of the MatesBUS connects to TX of the Host board, this is the 3.3V Asynchronous Serial UART Receive for communications between the device connected to the MatesBUS headers and the Host. This pin is 5V tolerant so is compatible with 5V UARTs.

RESET (MatesBUS Reset)
This pin is primarily connected to the BBM-Prog header, for programming the connected MatesBUS device, such as the TIMI-96. Is it also connected to the Host via a 680ohm resistor to the RST pin on the MikroBUS, making it possible for the Host to initiate a reset of the MatesBUS device as required.

NC (Not connected)
These pins are not connected or used, either by the MatesBUS or by the Host.

HOST/PROG Switch

The HOST/PROG selection switch is used to switch the RX signal which comes from the MatesBUS, between the Host's TX, and the BBM-PROG headers TX. This allows the User to select if the MatesBUS device is being programmed by the BBM-PROG header, or if it's connected to the Host, making it possible to program the device such as the TIMI-96 without having to unplug it from the MatesBUS and the MB Adaptor.

When you want communications to be between the Host and the MatesBUS device (such as the TIMI-96), the switch should be on **HOST**.

When you want the communications to be between the BBM-PROG header and the MatesBUS device, the switch should be on **PROG**.

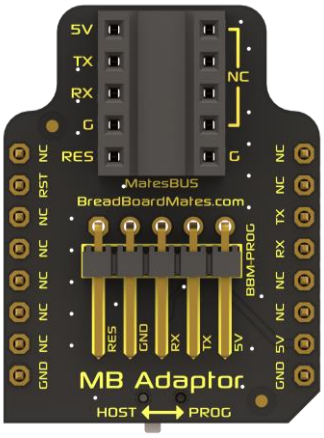
Connection to the Host board

The MB Adaptor connects to the Host directly to MikroBUS Click interface.

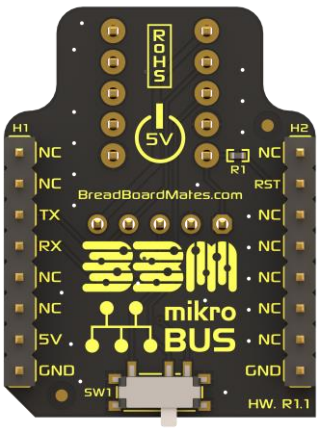
The MB Adaptor's male pin headers connects to the Hosts Click female headers / socket. This is compatible with both traditional Female Click headers, and the newer MikroBUS proprietary Click socket which is found on newer boards.

The MatesBUS device, such as a TIMI-96, then connects to the MB Adaptor, matching the pinout naming on both devices.

To illustrate, here is a STM32 M4 Clicker development board from MikroElektronika, with the MB Adaptor and a TIMI-96 all connected.

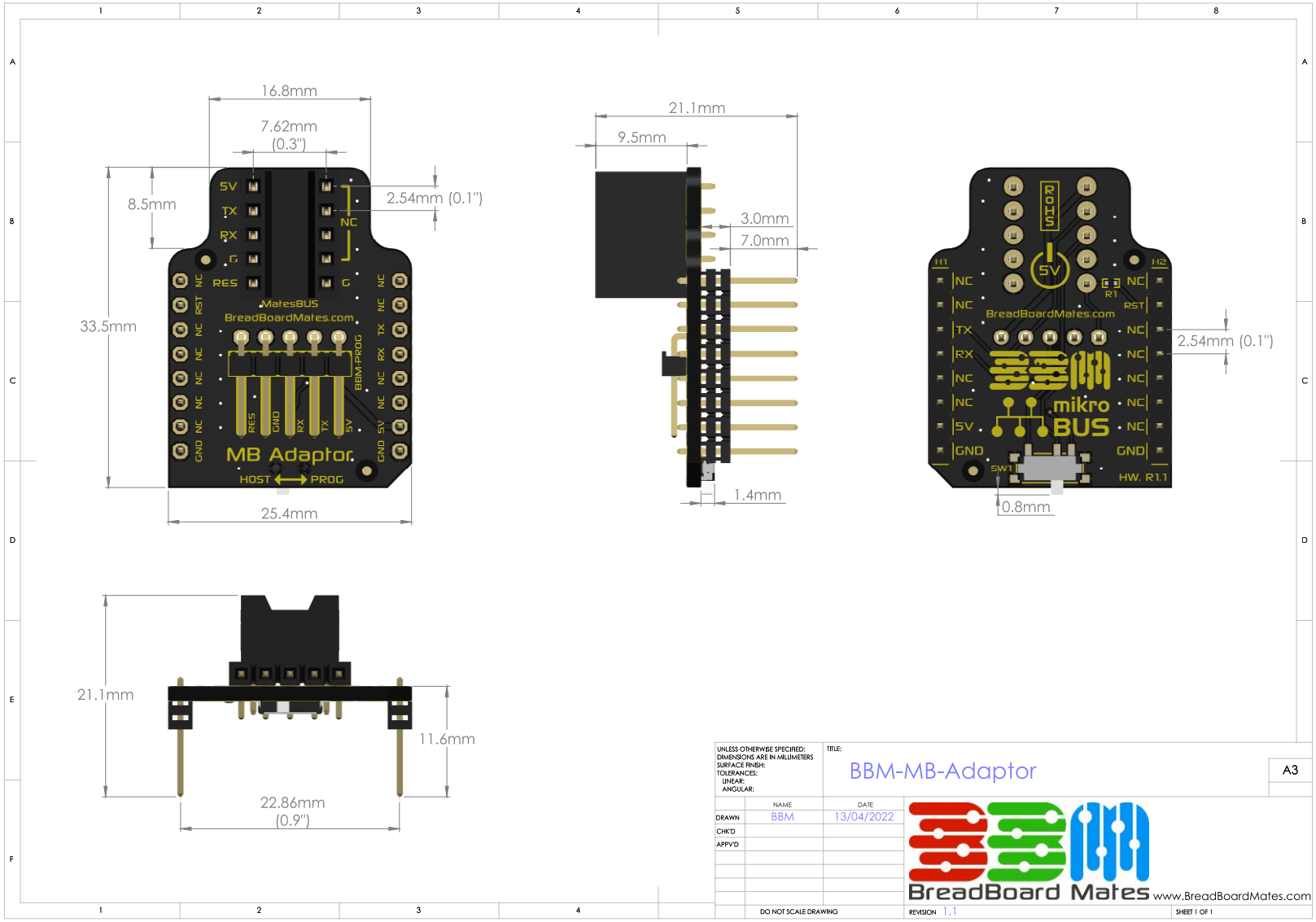


TOP View

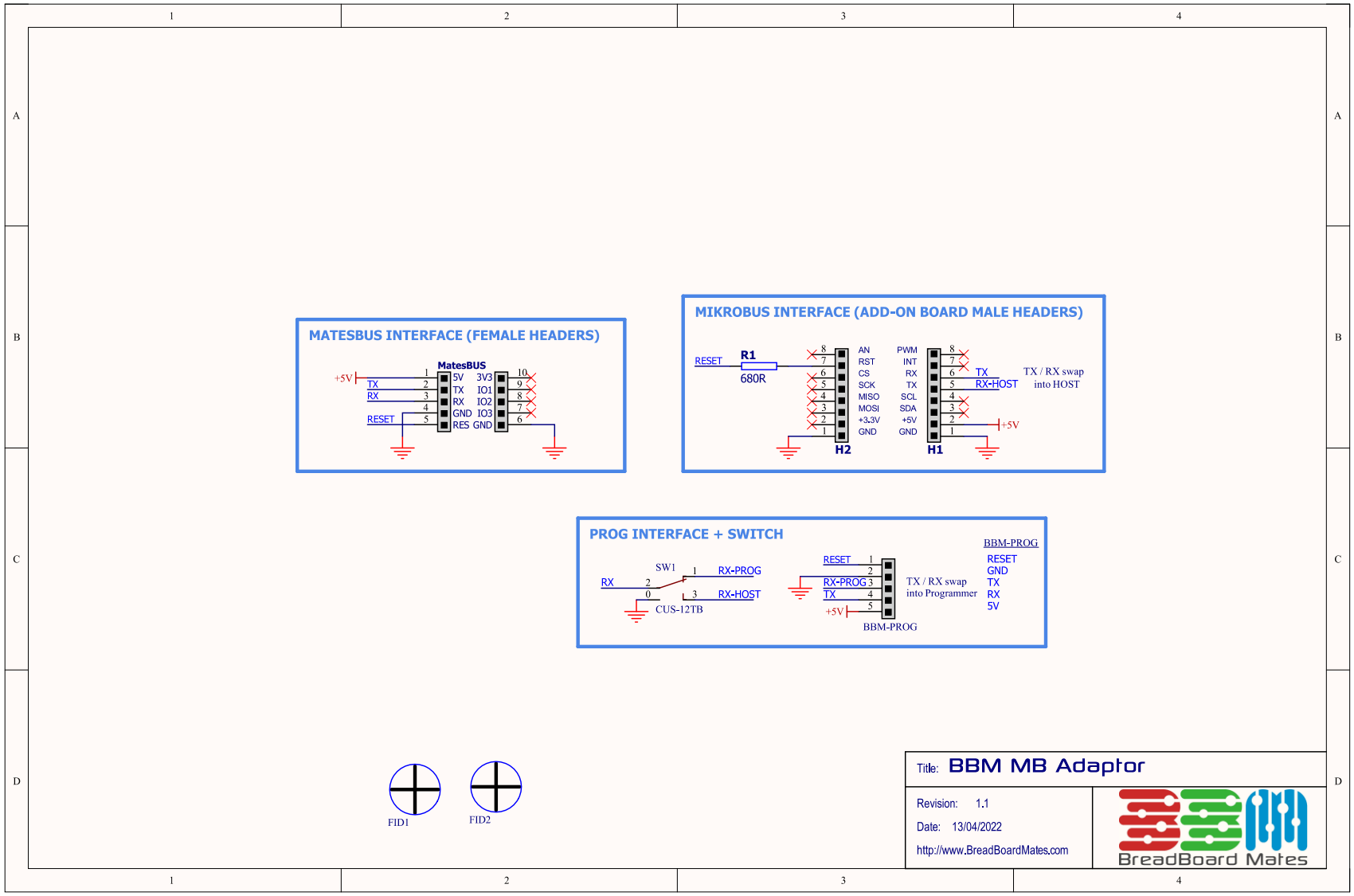


BOTTOM View

Hardware Drawing



Hardware Schematic



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