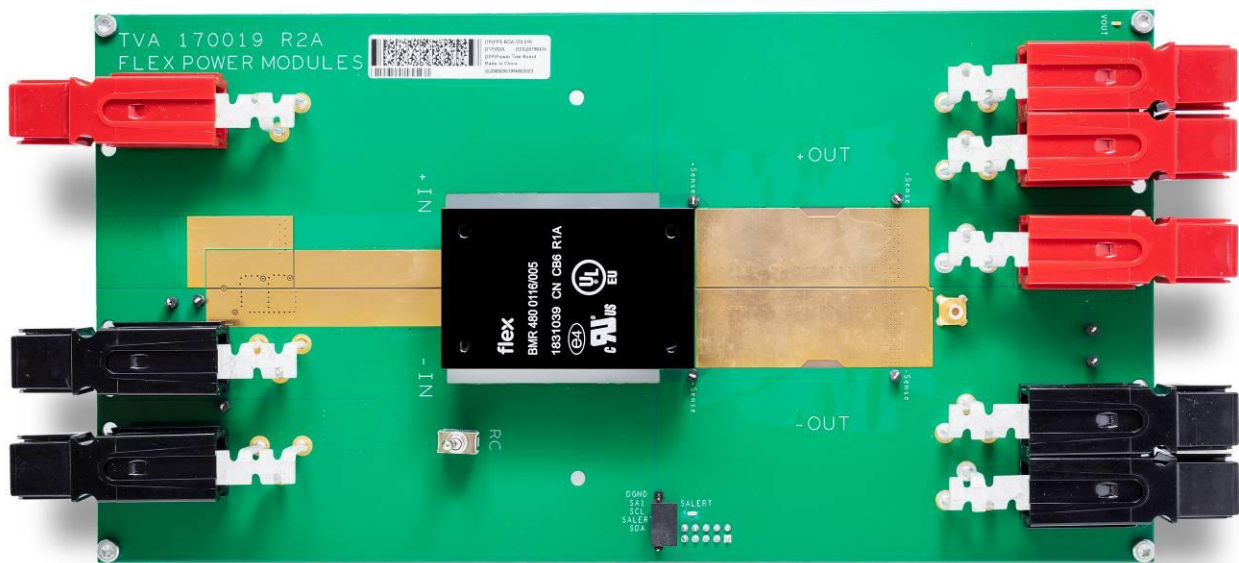


Evaluation Board BMR480/490

ROA 170019

User Guide



Copyright

© Flex Power Modules 2019. All rights reserved

Disclaimer

No part of this document may be reproduced in any form without the written permission of the copyright owner.

The contents of this document are subject to revision without notice due to continued progress in methodology, design and manufacturing. Flex Power Modules shall have no liability for any error or damage of any kind resulting from the use of this document.

Trademarks

All trademarks are properties of their owners.

Flex is the trademark of Flex Power Modules.

PMBus™ is a trademark of SMIF, Inc.

Windows® and **Microsoft®** are the trademarks of Microsoft Corporation in the United States or other countries.

Contents

1	Introduction.....	4
1.1	How to contact Flex Power Modules	4
1.2	Prerequisites.....	4
1.3	References	4
2	Evaluation Board BMR 490.....	5
2.1	General description.....	5
2.2	Description of digital header.....	6
3	USB to PMBus adapter	7
4	Input.....	7
4.1	Input capacitors.....	7
4.2	RC Control.....	7
4.3	Input voltage transients.....	8
5	Output.....	9
5.1	Output capacitors.....	9
5.2	SMB Connector.....	9
5.3	Shorting the output.....	9
6	PCB stackup summary	10
7	Revision record.....	10

1 Introduction

This User Guide provides a brief introduction and instruction on how to use the Evaluation Board BMR 490. This board provides the possibility to evaluate the BMR 490 modules.

1.1 How to contact Flex Power Modules

For general questions or interest in our products, please contact your local sales representative. Contact details are available from our website:

www.flexpowermodules.com

1.2 Prerequisites

In order to operate the Evaluation Board BMR 490 the following is needed:

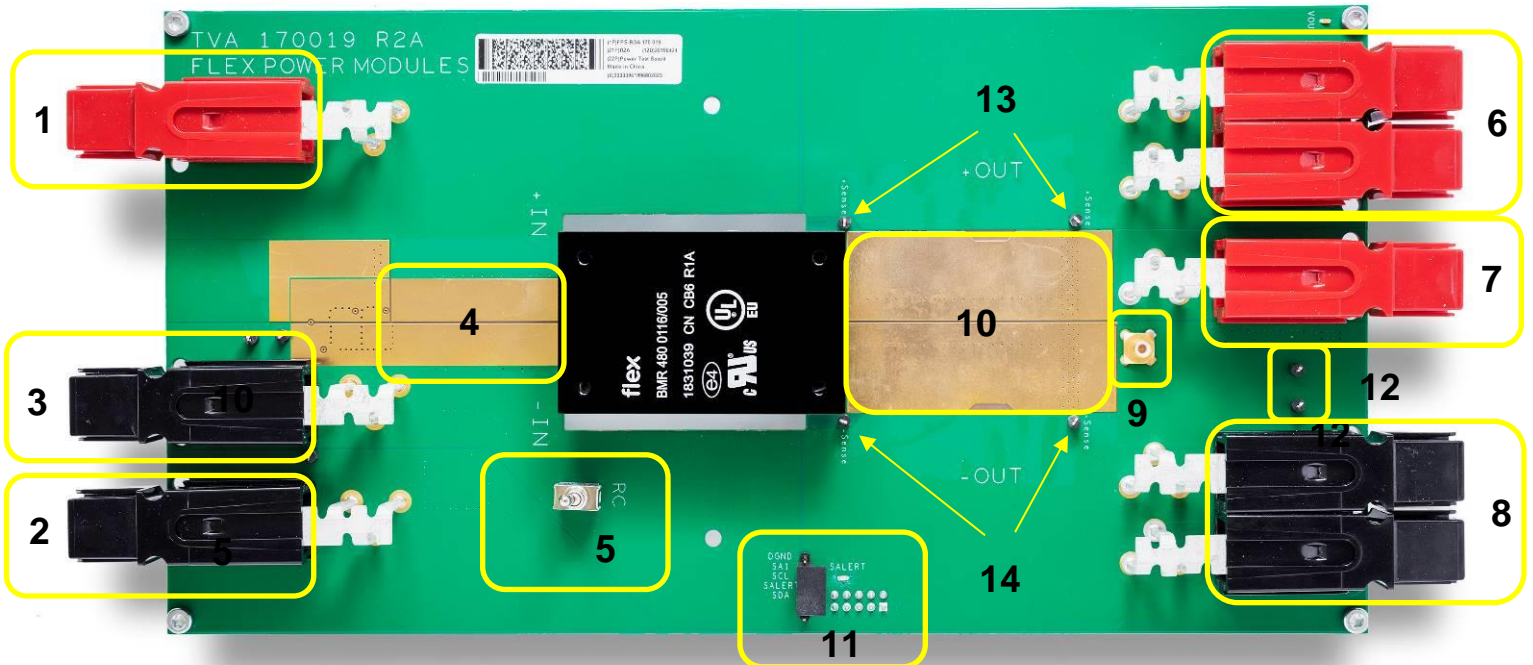
- Power supply 40-60 V.
- Electronic load.
- BMR 490 modules.
- PMBus-to-USB adapter KEP 910 17.
- The “Flex Power Designer” software package and a compatible Windows PC. Users must be familiar with the Windows® operating system.
- Flex RDTool (optional).

1.3 References

- 1911-ROA 170 019
- n/1301-BMR 490

2 Evaluation Board BMR 490

2.1 General description



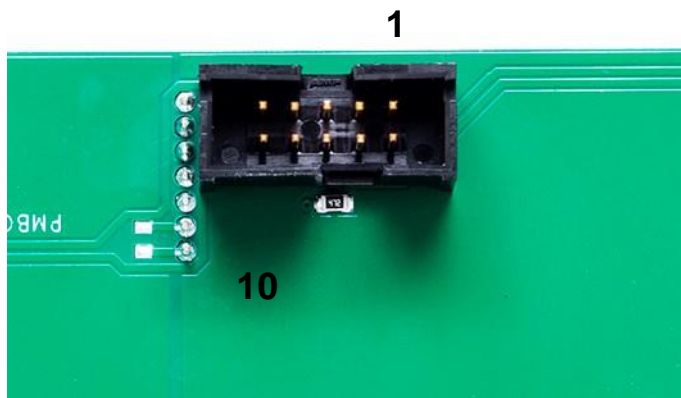
Picture 2. ROA 170 019 (top side).

Position Description

- 1 Positive input voltage connector.
- 2 Negative input voltage connector "K2".
- 3 Negative input voltage connector.

- 4 Pads for input capacitors.
- 5 RC switch.
- 6 Positive output voltage connectors.
- 7 Positive output voltage connector “K102”.
- 8 Negative output voltage connectors.
- 9 SMB Oscilloscope connector for output voltage monitoring.
- 10 Pads for output capacitors.
- 11 PMBus header, connector located on the bottom side.
- 12 Connectors for external voltage supply.
- 13 Positive output sense testpoints.
- 14 Negative output sense testpoints.

2.2 Description of digital header



Picture 3. Digital header with pin numbering.

Pin Description

- 1 DATA 5
- 2 DATA 4

3	DATA 3
4	DATA 2
5	VCC
6	GND
7	CTRL / DATA 1
8	SALERT
9	SCL
10	SDA

3 USB to PMBus adapter

In order to communicate with the module on the board the USB to PMBus adapter KEP 910 17 shall be connected to the board and the PC. The connector is found on the bottom side of the board. Note: The digital header of the module must be soldered on to the board.

4 Input

4.1 Input capacitors

The board has pads which makes it possible to solder capacitors to the input. There are also pads on the bottom side of the board.

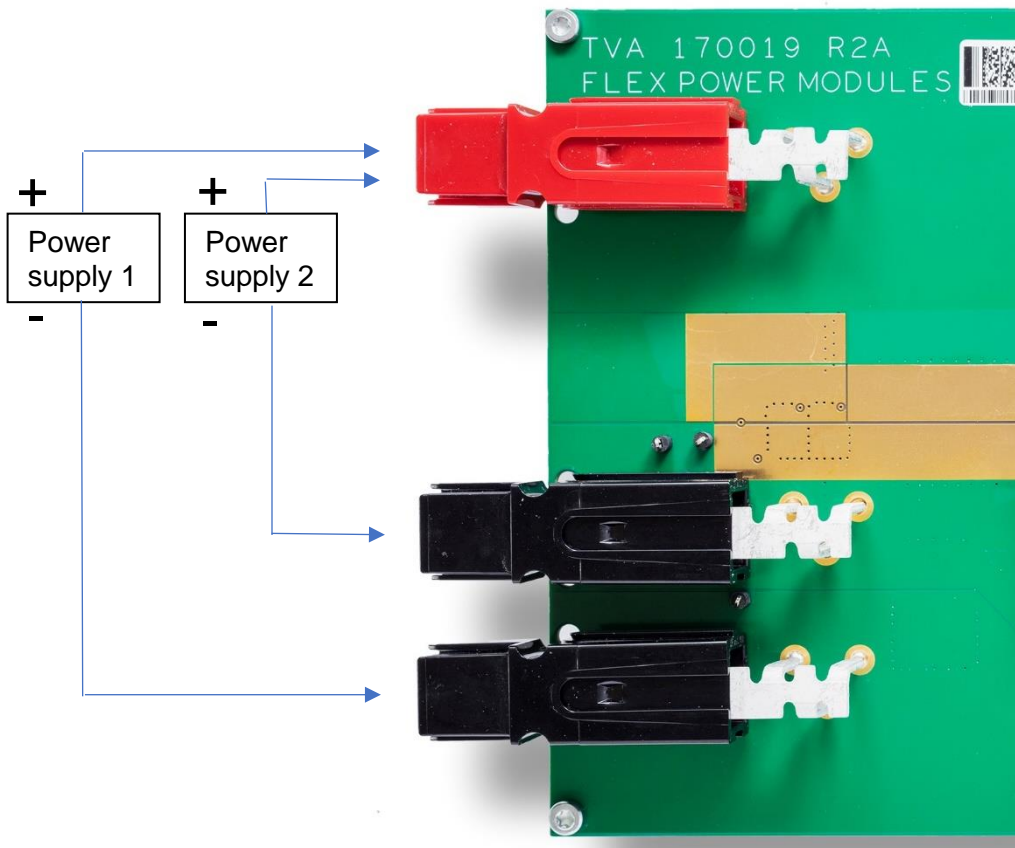
4.2 RC Control

The module can be turned on and off by the RC switch.

4.3 Input voltage transients

Input voltage transients can be applied by connecting two power supplies to the board. Use the Positive input connector as a common input for the positive rails of the power supplies and connect each negative rail to the Negative input connector and the Negative input connector "K2" respectively.

By setting different voltage levels it is possible to switch between levels and creating a voltage transient. The power supply connected to the Negative input connector "K2", in this case Power supply 1 shall be set to the lower voltage level.



Picture 4. Connection of power supplies for input voltage transient testing.

5 Output

5.1 Output capacitors

The board has pads which makes it possible to solder capacitors to the output. There are also pads on the bottom side of the board.

5.2 SMB Connector

The output has a SMB Oscilloscope connector which makes it possible to monitor the output voltage with an oscilloscope.

5.3 Shorting the output

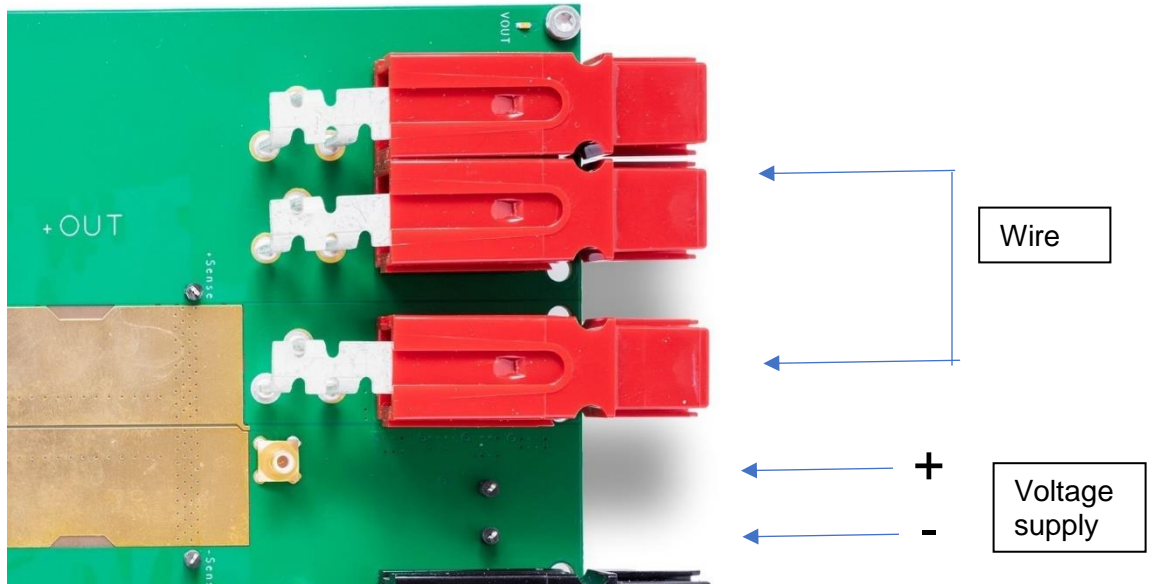
It is possible to create a short cut of the output either by connecting a signal generator or a voltage source to pin 4 on the digital header, or by sending a command via PMBus.

Connect a voltage source of 8 – 10 V to the Connectors for external voltage supply. Also connect a wire between one of the Positive output voltage connectors and the Positive output voltage connector “K102”, see picture. In this way the short circuit current can be measured with a current probe.

Note: The output is not yet shorted in this situation.

The short cut can be initiated in two ways:

1. Connect a signal generator or a voltage source with 3 – 5 V between pin 4 and GND (pin 6) on the digital header.
2. Send the command `"/CONTROL /ON=2"` with the RDTTool. To stop the short circuit the command `"/CONTROL /OFF"` has to be sent.



Picture 5. Connection of a wire and external voltage supply for short circuiting.

6 PCB stackup summary

The PCB consists of 8 layers of 0.105 mm / 3 Oz. copper thickness. The dielectric thickness is 0.127 mm and the total board thickness without mask is 1.729 ± 0.2 mm.

Board dimension is 130 x 250 mm.

7 Revision record

Rev	Description	Date
A	New Document	2019-07-10