BODAS
Measuring Adapter MA
Series 10

RE 95090
Edition: 10.2017
Replaces: 03.2015

- Break-out box for BODAS controllers RC
- Access to electrical interfaces of controllers
- To be used at the desk or at the cable harness of the machine
- Measurement and manipulation of controller's inputs and outputs

Features

The BODAS measuring adapter is specified for the connection of BODAS controllers with the BODAS connector system. The measuring adapter is joined up in the circuit with the BODAS RC controller. This allows individual access to the BODAS RC controller connectors at the adapter:

- Measurement of all electrical input and output signals within the context of:
  - Commissioning
  - Diagnostics
  - Service
- Feed in of external signals
- Control of consumers (e.g. solenoids), signal indicators (e.g. lamps) and sensors
- Fault simulation via disconnection and connection of contacts

Inhalt

Ordering code

01	02		03
MA		**/**	**10**

Model

01	BODAS measuring adapter	**MA**

Version

02	154-pin	for BODAS controller RC28-14/30 family	**6**
	56-pin	for BODAS controller RC4-5/30	**7**
	154-pin	for BODAS controller RC10-10/31 and RC/40 family	**8**

Series

03		**10**

Description

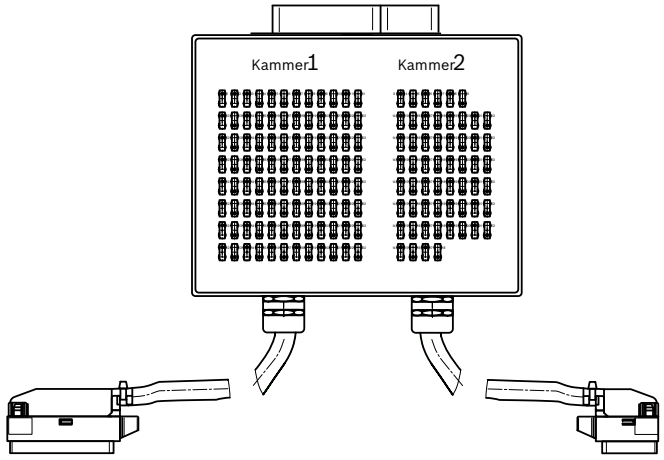
The BODAS measuring adapter MA is used for measuring all electrical signals at the inputs, outputs and interfaces of the BODAS controller. It is preferably used in commissioning or troubleshooting on the vehicle or device.
The BODAS measuring adapter MA is joined up in the circuit between the BODAS controller and the vehicle or device wiring.
The measuring bushings are numbered to correspond to the connection contacts of the BODAS controller and thereby match the designations in the connection diagram (refer to corresponding RC data sheet, such as RC10-10/31 = RE95203).
To disconnect connections from the vehicle or device wiring to the BODAS controller, individual jumper connectors can be removed at the BODAS measuring adapter. In this way, the current across a proportional solenoid can be measured, for example, with an amperemeter that is connected to the BODAS measuring adapter. A break in a connection cable can also be simulated with the removal of a jumper connector (wire break monitoring).
Another fault simulation can be the connection of any contacts (e.g. potentiometer monitoring). Moreover, if necessary additional signals can be coupled into the system, for example, from external control units via the BODAS measuring adapter.

Technical data

Typ				**MA6**	**MA7**	**MA8**
Plug connector			BOSCH	58-pin 96-pin	56-pin / 56-pin (unused with RC4-5/30)	60-pin (unused with RC10-10/31) / 94-pin
Number of measurement points (jumper connectors)			4 mm sockets	–	112	154
			2 mm sockets	154	–	–
Operating voltage				0 to 32 V		
Maximum permissible current	Sockets	101 to 105 and 125 to 129, 148 to 153, 171 to 177, 196	A	5	–	–
		106 to 121 and 130 to 147, 154 to 170, 178 to 195, 208 to 219, 221 to 232, 234 to 244, 247 to 257		2	–	–
		201, 203 to 206, 245, 258		<10	–	–
		122 to 124, 202, 207, 220, 233, 246		3	–	–
		(201 to 248) 101 to 148		–	7	–
		(249 to 256) 149 to 156		–	19	–
		K01 to K06		–	–	20
		K07 to K94 (A01 to A60)		–	–	5
Length of the connection lines			mm	750	600	900
Dimensions (without connection lines)			mm	280×225×80	260×220×50	300×265×50
Ground			kg	3.6	3	3.6
Protection class				IP20		
EMC				no EMC protection		

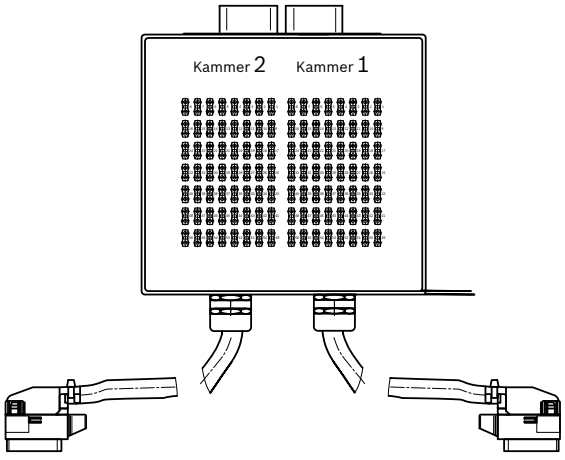
Versions

BODAS measuring adapter MA6 – 154-pin for BODAS controllers RC36-20/30 and RC28-14/30 family



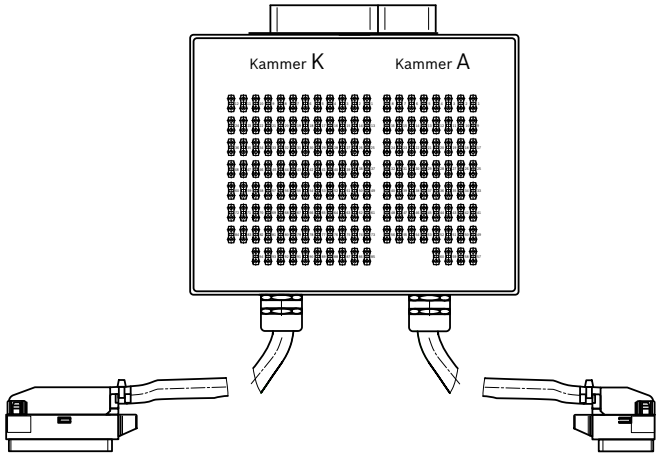
Bosch connector, 96-pin[1)] Bosch connector, 58-pin[1)]

BODAS measuring adapter MA7 – 56-pin for BODAS controller RC4-5/30



Bosch connector, 56-pin[1)] Bosch connector, 56-pin[1)] (unused with RC4-5/30)

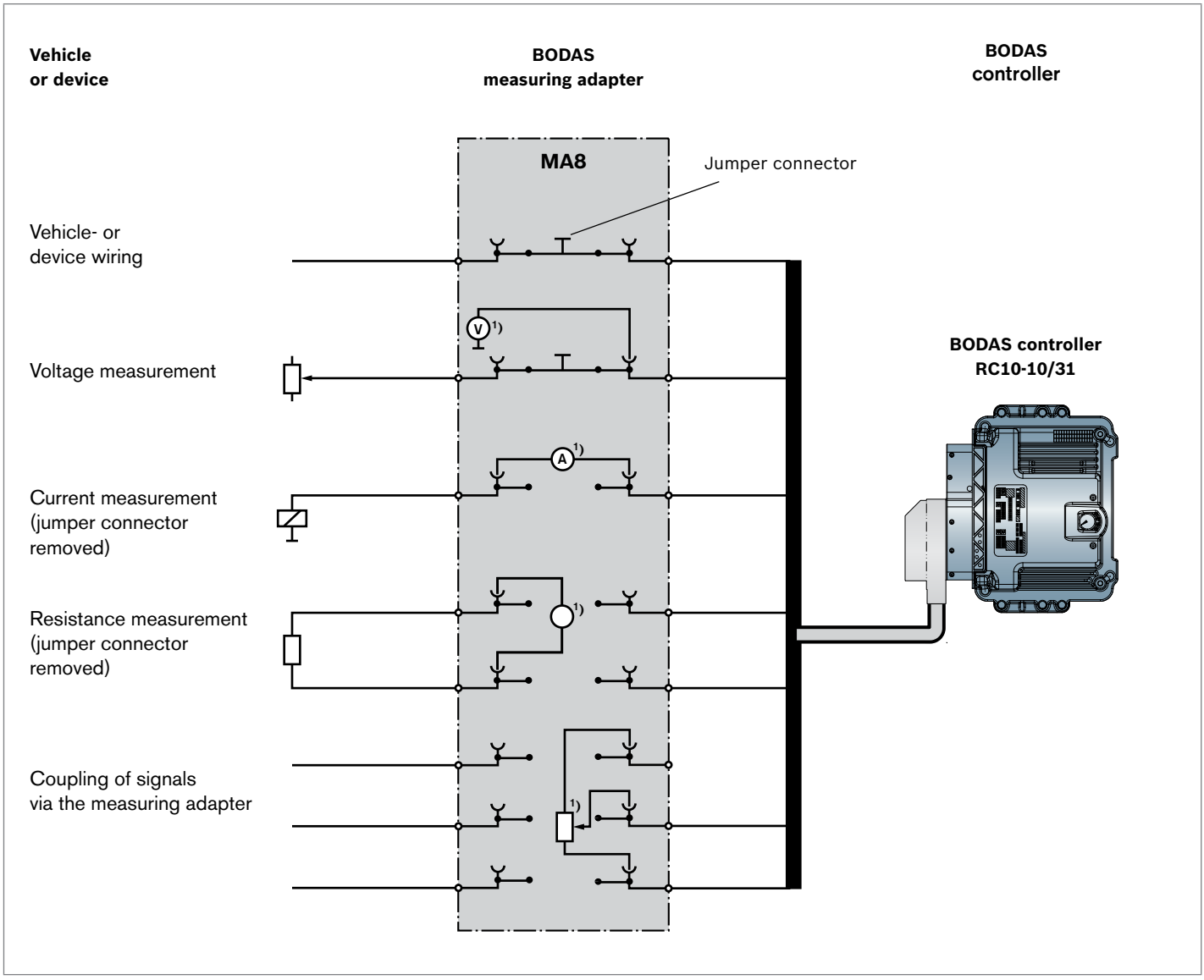
BODAS measuring adapter MA8 – 154-pin for BODAS controller RC10-10/31 and RC/40 family



Bosch connector, 60-pin[1)] (unused with RC10-10/31) Bosch connector, 94-pin[1)]

Footer see page 5

Examples for measurements with the BODAS measuring adapter MA8



1) Measuring equipment and potentiometer are not included in the delivery contents.

Footer from page 4:

1) Information about the Bosch connectors are found in the data sheet for the BODAS RC controller
2) RC28-14/30 family, 95204
3) RC4-5/30, 95205
4) RC10-10/31 and RC/40 family, 95206

Safety instructions

General instructions

- The suggested circuits do not imply any technical liability for the system on the part of Rexroth.
- The use of the BODAS measuring adapter in the standard work mode of the machine is not permissible.
- Work on the PC with BODAS measuring adapter in connection with a control unit or display in a machine or a vehicle may only be performed during commissioning of the machine were during service work.
  Appropriate safety measures against dangers caused by unexpected operating conditions must be provided.
- Before switching on the BODAS controller with the BODAS measuring adapter, make sure that via control of the outputs no safety-critical situations can occur.
- Opening of the BODAS measuring adapter, modifications or repairs on the BODAS measuring adapter are prohibited. Modification or repairs to the wiring could lead to dangerous malfunctions.
  Repairs on the BODAS measuring adapter mailing be carried out by Bosch Rexroth or by suitable contracting partners.
- To switch off the system in emergencies, the power supply to the electronics must be disconnected with a safety switch.
  The safety switch must be installed in an easily accessible position for the operator. The system must be designed in such a way that actuating the safety switch ensures safe braking.
- During the commissioning and maintenance of the vehicle / machine with the BODAS measuring adapter (with BODAS tools), the machine may pose unforeseen hazards. Before commissioning the system, you must therefore ensure that the vehicle and the hydraulic system are in a safe condition.
- Make sure that nobody is in the machine's danger zone.
- No defective or incorrectly functioning components may be used. If the components should fail or demonstrate faulty operation, repairs must be performed immediately.
- The BODAS measuring adapter is suitable for mobile operation in the vehicle (only in the interior - Of the machines), in the laboratory and on the test bed.
- The BODAS measuring adapter is designed for operating and storage temperatures from -10 °C to +40 °C.

Notes on the installation location and position

- Do not install the BODAS measuring adapter close to parts that generate considerable heat (e.g. exhaust).
- The measuring adapter MAx is only suitable for use in protected areas (e.g., cab). Only use adapter in dry spaces. Avoid buildup of condensation water and water spray.
- Radio equipment and mobile telephones must not be used in the driver's cab without a suitable antenna or near the control electronics and the BODAS Tools (BODAS measuring adapter).
- A sufficiently large distance to radio systems must be maintained.
- When connecting or disconnecting the BODAS measuring adapter, the controller or the vehicle (entire vehicle electrical system) must be switched off.
  Connection of the measuring adapter only in the deenergized state!
  Before disconnecting the plug on the vehicle side, shut off the controller power supply (terminate overtravel).
  Do not touch plug contacts on the vehicle side.

Notes on transport and storage

- If it is dropped, the BODAS measuring adapter must not be used any longer as invisible damage could have a negative impact on reliability.

Intended use

- The BODAS measuring adapter is designed for the commissioning and maintenance work of mobile working machines in combination with the BODAS RC controller.
- Operation of the BODAS measuring adapter (Tools "the BODAS hardware in combination with BODAS measuring adapter") must generally occur within the operating ranges specified and released in this data sheet, particularly with regard to voltage, current, temperature, vibration, shock and other described environmental influences.
- Only measuring equipment approved for this voltage range and signals suitable for the application and BODAS RC controller may be connected to the BODAS measuring adapter. Faulty wiring on the measuring adapter can cause damage in the vehicle electrical system and/or control unit!
- Use outside of the specified and released boundary conditions may result in danger to life and/or cause damage to components which could result in consequential damage to the mobile working machine.

Improper use

- Any use of the BODAS measuring adapter other than described in chapter "Intended use" is considered to be improper.
- BODAS measuring adapter is not suitable for use in functions relevant to safety.
- The BODAS measuring adapter is not suitable for standard installation in mobile working machines.
- Use in explosive areas is not permissible.
- Damages resulting from improper use and/or from unauthorized interference with the component not described in this data sheet render all warranty and liability claims void with respect to the manufacturer.

More detailed information

- More detailed information about the BODAS measuring adapter and BODAS tools can be found at www.boschrexroth.com/mobilelektronik under the Tools heading.
- Pay regular visits to our home page for the latest product information and information about updates.
- The BODAS measuring adapter must be disposed of professionally by the customer.

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