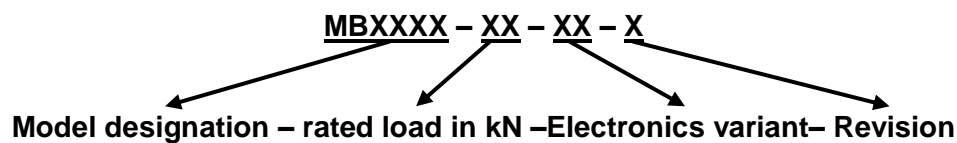


Troubleshooting guide for force sensing bolts without integrated measuring amplifier [mV/V]

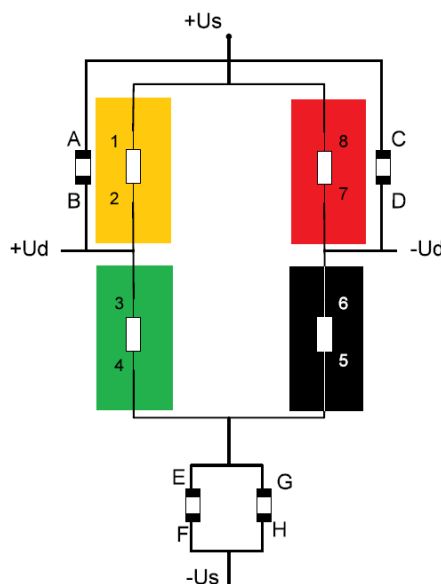
This step-by-step guide is intended for checking common causes of errors when using load pins from Batarow Sensorik GmbH. If you require assistance while performing any of these steps, please feel free to contact one of our technicians.

1. Identify the specific type of load pin being used by referencing the labelling on the head cover. The accurate model designation can be found after the label 'Orderno.:'. This designation is composed as follows:

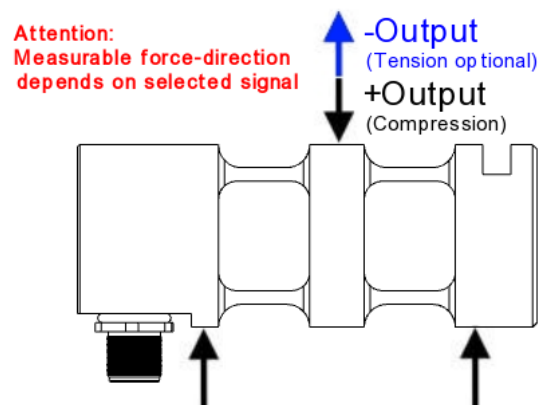


2. Determine the serial number of the load pin by referring to the labeling on the head cover. The serial number can be found after the label 'Serialno.:'.
3. Locate the description of the output signal matching your load pin and the corresponding pin or cable assignment. To do this, refer to the third page (Output Signal & Wiring) in the attached datasheet to find the description that matches your electronics variant. Adjacent to the relevant description, you will find the associated pin or cable assignment.
4. Verify whether all connections of the load pin have been attached to your system according to this assignment. For your convenience, an explanation of the utilized labels and a depiction of the employed measuring bridge are provided here:

Notation	Description	Abbreviation
Excitation (+)	Positive supply voltage (1-10 V)	+ U _s
Excitation (-)	Negative supply voltage (GND)	- U _s
Bridge (+)	Positive signal voltage [mV/V]	+ U _d
Bridge (-)	Negative signal voltage [mV/V]	- U _d



5. Verify if a sufficient supply voltage is present at the load pin. To do this, conduct a voltage measurement [V] between Excitation (+) and Excitation (-). The measurement value should be within the range of 1-10 V.
6. Verify the output signal of the load pin under no load conditions. To do this, perform a measurement [mV] between Bridge (+) and Bridge (-) while the load pin is in an unloaded state and sufficient supply voltage is applied. The measurement value should approximately match the zero-signal indicated in the accompanying test report. Ensure correct connection of the measuring device!
7. Verify the output signal of the loaded load pin. To do this, perform a measurement [mV] between Bridge (+) and Bridge (-) while applying a slight load by hand or through a corresponding device to the load pin, and ensuring sufficient supply voltage is applied. The measurement value should change as the load increases. Pay attention to the correct connection of the measuring device!
8. If the output signal deflects in the wrong direction, verify compliance with the load direction indicated on the first page of the datasheet.



9. If the issue persists, please send us an email with the following information:
 - What is the model designation of the load pin?
 - What is the serial number of the load pin?
 - Was an error in the connection assignment found and corrected?
 - What was the measured supply voltage?
 - What measurement value does the load pin provide in the unloaded state?
 - What measurement value does the load pin provide in the loaded state?
 - Was an error in the load direction found and corrected?
 - How exactly does the observed error manifest?
 - Under what conditions does the error occur?
 - Has the load pin been in use previously or is it being newly installed?
 - What is the installation orientation of the load pin? Please provide pictures!