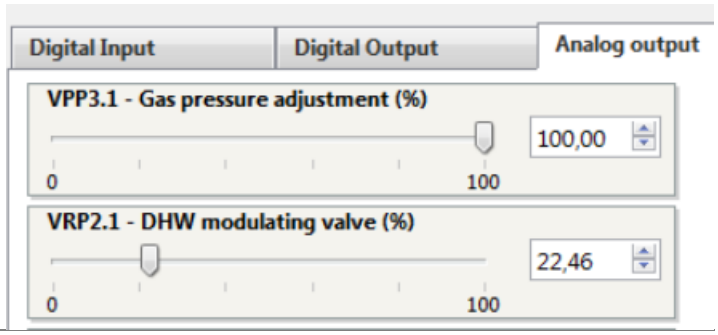
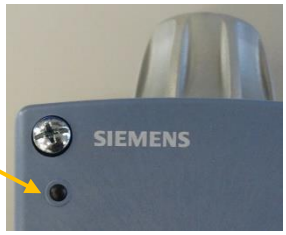
Siemens MXG proportional control valves troubleshooting

Qualified personnel are required to conduct the work that is described and recognize potential hazards.

Possible problem	Possible solution
Valve problem	Enter the diagnostic application of the test bench, move the proportional valve cursor from 0 to 100% and: • visually check that the stroke (spring) of the valve moves in accordance • check that a change of the flowrate is produced in the same circuit
Electrical problem	1. Check fuse/thermal switch inside the electrical cabinet and replace/reactivate if needed 2. Check led status on the valve





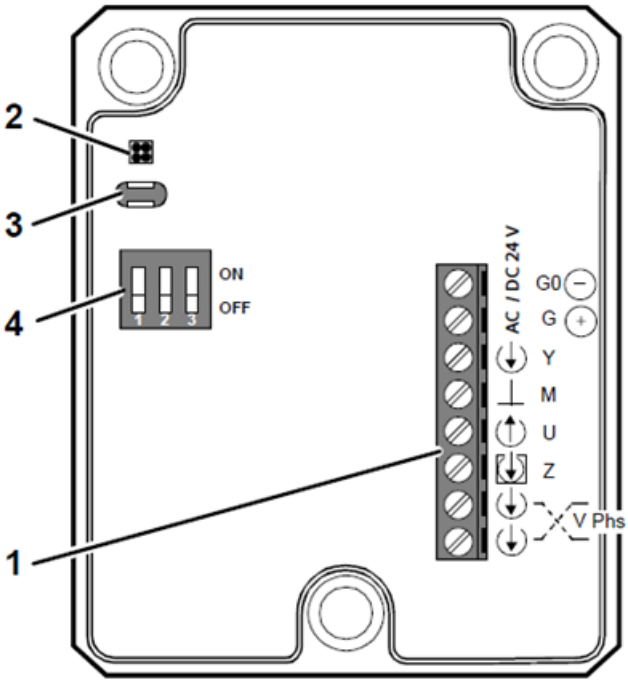
LED	Indication	Function	Remarks, troubleshooting
Green	Lit	Control mode	Automatic operation; everything o.k.
	Flashing	Calibration In manual control	Wait until calibration is finished (green or red LED will be lit) Hand wheel in MANUAL or OFF position
Red	Lit	Calibration error Internal error	Recalibrate (operate button in opening 1x) Replace electronics module
	Flashing	Mains fault	Check mains network (outside the frequency or voltage range) or valve blocked
Both	Dark	No power supply Electronics faulty	Check mains network, check wiring Replace electronics module

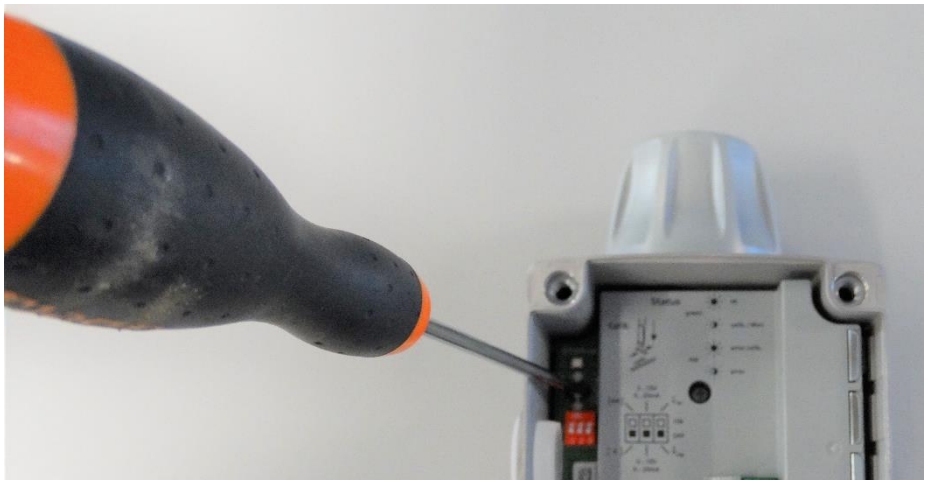
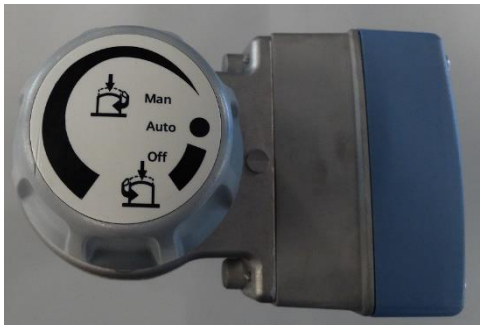
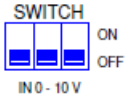
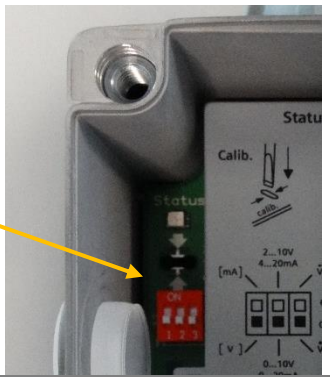
In case the led is red-lit (steady) **execute calibration**.

Possible problem	Possible solution

Here is the procedure to execute the **valve calibration**:

1. ensure there is no pressure in the circuit where the proportional valve is installed, evacuate water if needed;
2. remove the protective cover to access the printed circuit board where you'll find a slot for the autocalibration (position 3):



Possible problem	Possible solution
	3. Calibration is made by bridging the contacts located behind the slot using a plate screwdriver:  4. The valve will then travel across the full stroke to store the end positions. While calibration is in progress, the green LED will flash for about 10 seconds.
Dirt	• Dirt, like incrustations of limestone, might have cumulated in the hydraulic body of the valve preventing the stroke to move. As a consequence, the external led might be red steady. Ensure safety condition, then disassemble clean and reassemble the valve. • When done execute calibration as indicated here above
Wrong settings	• Make sure the top knob is set to Auto  • Remove the protective cover and check dip switch inside. Mostly used valves have 0-10V command, in this case the associated dip switch configuration is the following  
Valve leakage	• Dirt might have cumulated in the hydraulic body of the valve or stroke: ensure safety condition, then disassemble clean and reassemble the valve.

Possible problem	Possible solution
	• Proportional control valves are not positive (100%) shutoff devices. Depending on the rating of the valve, the allowable leakage rate can be more than 0.05% of the valve capacity (KVS). Therefore, if the test being performed requires positive shutoff (leak tightness), on/off valves must be included in the test bench design.
Noise	The noise produced by the proportional valve, during normal operations, can be the consequence of: • excessive water flow rate • excessive upstream water pressure
I/O module problem	• Check led status on I/O modules inside electrical cabinet • Read Wago and Beckhoff electronic modules troubleshooting