




MEIRI ME520 Version

USER MANUAL



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SAFETY INSTRUCTIONS

PLEASE READ THIS MANUAL BEFORE PROCEEDING ANY HANDLING

WARNING

Keep this manual in a safe place for further usage.

PRECAUTIONS

Always follow the basic precautions listed below to avoid accidents such as electric shock, short circuit, fire and other damage. These precautions given below are not exhaustive.

ELECTRICAL WIRINGS

Only use the approved power source. This information is located on the nameplate of the manufacturer. Be sure that the mains voltage is the same as the one written on the rear of the device. The electric line must contain a switch with two poles. The equipment must be able to easily disconnect. The device must be installed so that the mains plug remains accessible.

The manufacturer declines all responsibilities in case of improper use of the device. Periodically check the state of the plug. Only use the included power cord. Do not leave the power cord near heat sources as radiators or heating installations. Avoid overbending the cable, damaging it or placing it under heavy objects. Never open the device, do not remove or modify internal parts. The user can only remove or insert cards on the front, no intervention on internal parts of the device is required. If the measuring instrument is malfunctioning, turn off the power immediately and give it to a MEIRI qualified technician for inspection.

PRECAUTIONS ON THE LOCATION

Using this measuring device in the following locations can lead to a malfunction: right under the sun, hot or very humid places, dusty or dirty areas, places subjected to strong vibrations or near magnetic fields. Avoid leaving the device in the rain or damp places. Do not place liquid containers on it. Never touch an electric plug with wet hands. If the power cord is damaged or if you detect unusual smell or smoke, immediately turn off the switch, remove the plug from the outlet, and give the measuring device to a MEIRI qualified technician for revision.

GROUNDING THE EQUIPMENT

Always connect the three-pole plug to a properly grounded power supply. The electrical safety of this equipment is only assured if it is properly connected to an installation of grounding standards for electrical safety. It is essential to check whether this basic requirement of security is met. During installation, there should be a two-pole switch with at least 3 mm contact opening.

OTHER PRECAUTIONS

Disconnect all connected cables before moving the measuring device. Do not disassemble this device without removing all the cables from the rear panel, including the power cord. The disassembly by a person not authorized by MEIRI would cancel the warranty. Do not place the objects in front of the air vents of the measurement unit that would prevent adequate ventilation of the internal components and cause overheating. Before connecting the measuring device to other electronic components, turn off the power. Do not insert objects in paper, metal or other into the cover's slot. If this happens, immediately turn off and unplug the power cord from the mains and have the instrument inspected by a qualified person. Do not use excessive force on the buttons, switches and connectors.

LITHIUM BATTERY

The measuring device has a lithium battery (CR1220BE) and calendar data (date and time) are kept even if you unplug the device. However, if the battery is completely discharged, date and time would be lost. However, the accuracy of the measurements would not be affected. Don't throw away the flat batteries, bring them to appropriate collection places.

CLEANING

Before any cleaning or maintenance, disconnect the unit by disconnecting the plug or turning off the switch of the electrical installation. When the device is dirty, clean it with a clean dry cloth. Do not use liquid cleaning products such as benzene, thinner or flammable products. Never use paint thinners, solvents, cleaning products or cleaning pads impregnated with chemicals. MEIRI is not responsible for damages caused by improper use of the device or by changes made by the user and cannot cover data loss or destruction.

WARRANTY

Measuring devices are guaranteed 1 year by MEIRI, parts and labor, return to factory, except special provisions. Exchanges or repairs under guarantee cannot extend the term. In order to apply the warranty, the user must contact the MEIRI distributor who sold the device. No compensation is owed in case of stopping of the unit for repair under warranty. The warranty will not work in the following cases:

If the unit has been started on a voltage other than indicated on the nameplate. If the delivered equipment is misused, abused or changed. If the user causes damage through negligence, inadequate maintenance, lack of experience or use of harmful products. Warranty repairs are performed in our laboratories. The unit must be returned in packing ensuring its safety during transport. The user is responsible for shipping and packaging for the return of the unit at the factory. MEIRI or its distributor cover the freight and packing charges when returning the repaired device, but only in continental France.

INTRODUCTION

The **ME520AJ** is a DIN rail mountable amplifier, which adapts to most strain gage-based load cells, pressure transducers and accelerometers. The bridge supply voltage can be set to 5 V or 10 V for +/-10 V analog output signals or 0/4-20 mA current outputs. The module covers a sensitivity range from 0.1 mV/V to 30 mV/V. It also allows connecting four 350 ohm sensors in line with 5 V excitation.

SYSTEM DESCRIPTION ME520-AJ

- Suited for 1 to 4 Strain Gage Sensors
- 120 to 10000 Ohm Bridge impedance
- 10 V or 5V Bridge Excitation – 4 or 6 wires
- Adjustable Sensitivity Range 0.1 to 30 mV/V
- Calibration Pushbutton from 0.1 to 10 mV/V
- Zero and Gain Fine Tuning by trimmers
- +/-10 V Analog or 0/4-20 mA Current Output
- 0.01% F.S. Accuracy
- 2 kHz or 20 kHz max. Bandwidth
- 18-36 Vdc Isolated Power Supply

Sensor Type	Full bridges, strain gage-based, 4 or 6 wires. Optional ½ and ¼ bridge 350 ohm (120 ohm on request).
Bridge Impedance	120 Ohm < Z < 10000 Ohms (for 120 Ohm, Bridge excitation 5V max)
Bridge Supply Voltage	10 V or 5V (for 120 ohm select 5V) i maxi 60mA
Sensor Cable Rejection	2.10 ⁻⁵ / Ohm
Input Sensitivity	5 ranges from 0.1 mV/V to 30 mV/V
Fixed Zero Offset	4 ranges from +/- 50% to +/- 100% F.S.
Adjustable Zero Offset	+/- 20% minimum F.S.
Calibration Levels	0.1 to 10 mV/V
Voltage Output	±10V
Output Current	5 mA
Output impedance	0.2 ohm
Current Output	4-20mA ou 0–20 mA
Dynamic of the Current Output	0- 10V (Load Resistance 500 ohm at 20mA)
Accuracy	0.01% F.S.
Maximum Drift et the Input	< 1 µV / °C
Maximum Noise at the Input	< 3 µV RMS/2KHz 10µV RMS/20KHz
Common Mode Rejection	100 dB
Rejection of Power Supply variation	120 dB
Bandwidth	2 KHz or 20 KHz (±10%) at –3dB (15KHz maxi for range 0.1mV/V)
Voltage Output	±10V
Output Current	5 mA
Output impedance	0.2 ohm
Current Output	4-20mA ou 0–20 mA
Dynamic of the Current Output	0- 10V (Load Resistance 500 ohm at 20mA)
Accuracy	0.01% F.S.
Maximum Drift et the Input	< 1 µV / °C
Power Supply	24Vcc (18 to 36 Vcc). Consumption 100mA max
Power Supply Isolation	1000V dc max. 1min between 0V and GND output 400V peak between 0V and input/ earth or GND ouput/earth
Operating Temperature	-10 to +60°C
Storage Temperature	-40°C to +70°C
DIN rail mountable module	H: 99 L: 17.5 P: 112 mm.
Screw Connector Blocs	4 x 3 screws
Weight	110 grams approx.

SETTINGS AND ADJUSTEMENTS

Basic settings, including bridge supply voltage, bandwidth, signal output a fixed zero offset are easily performed with onboard jumpers. Zero and Gain adjusting is performed by trimmers on the front panel.

Important Advice : Disconnect all cables, before opening the module.

Configurable parameters :

Range of sensitivity in mV/V, jumpers of ranges « GAIN 1 to 5 ».

Offset jumpers « DZ 1 to 4 ».

Bandwidth, jumper « BP2K » (without jumper the bandwidth is 20kHz).

Voltage excitation jumper « Up5V » (without jumper Excitation = 10V).

Analog output, jumper on « U » voltage output, jumper on « I » current output.

Calibration points :

Several calibration points are possible. They depend on the range of selected sensitivity. Calibration point has always the value of the lowest sensitivity of the range. For example for the range from 1 to 3 mV/V the calibration point is of 1mV/V.

To activate the calibration point it is necessary to maintain on the pushbutton

Value to adjust the system :

Adjust the zero using the potentiometer of the front panel.

The value of analog output to be obtained depends on the sensitivity of the sensor. Press an hold on the pushbutton during the adjustment of the potentiometer to obtain:

Calibration Voltage output U_c

$$U_c = (\text{calibration point/sensor sensitivity}) \times 10V$$

Example of adjustment :

Sensor sensitivity 1.26mV/V for 100 kg (the full scale value of the sensor does not interne in calculations)

Wished analog output : 10V for 100kg (100kg corresponding to 1.26mV/V)

Range of sensitivity set on, 1 à 3 mV/V, range n°3.

With this range N°3 the calibration point is of 1mV/V.

$$UC = (1mV/V / 1.26mV/V) \times 10V = 7.936V$$

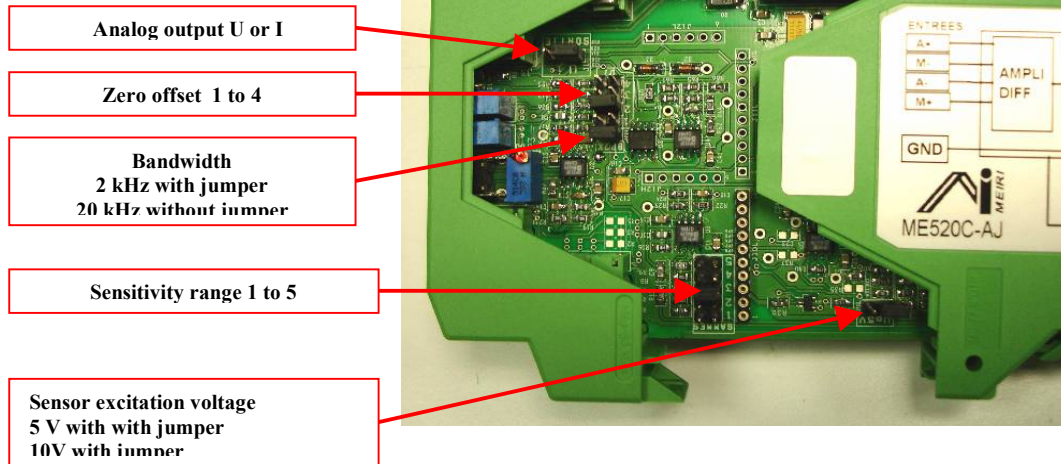
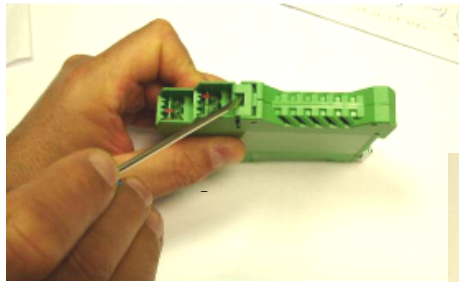
After having adjusted the zero, hold on the calibration pushbutton and adjust the Gain to obtain 7.936 volts at the analog output.

If it is impossible to reach the desired value, change range using jumper inside the unit.

Caution : the calibration point changes too. Refer to the table below.

Configuration of module ME520-AJ

Important Advice : Disconnect all cables before opening the module.



Analog output U or I

Zero offset 1 to 4

Bandwidth
2 kHz with jumper
20 kHz without jumper

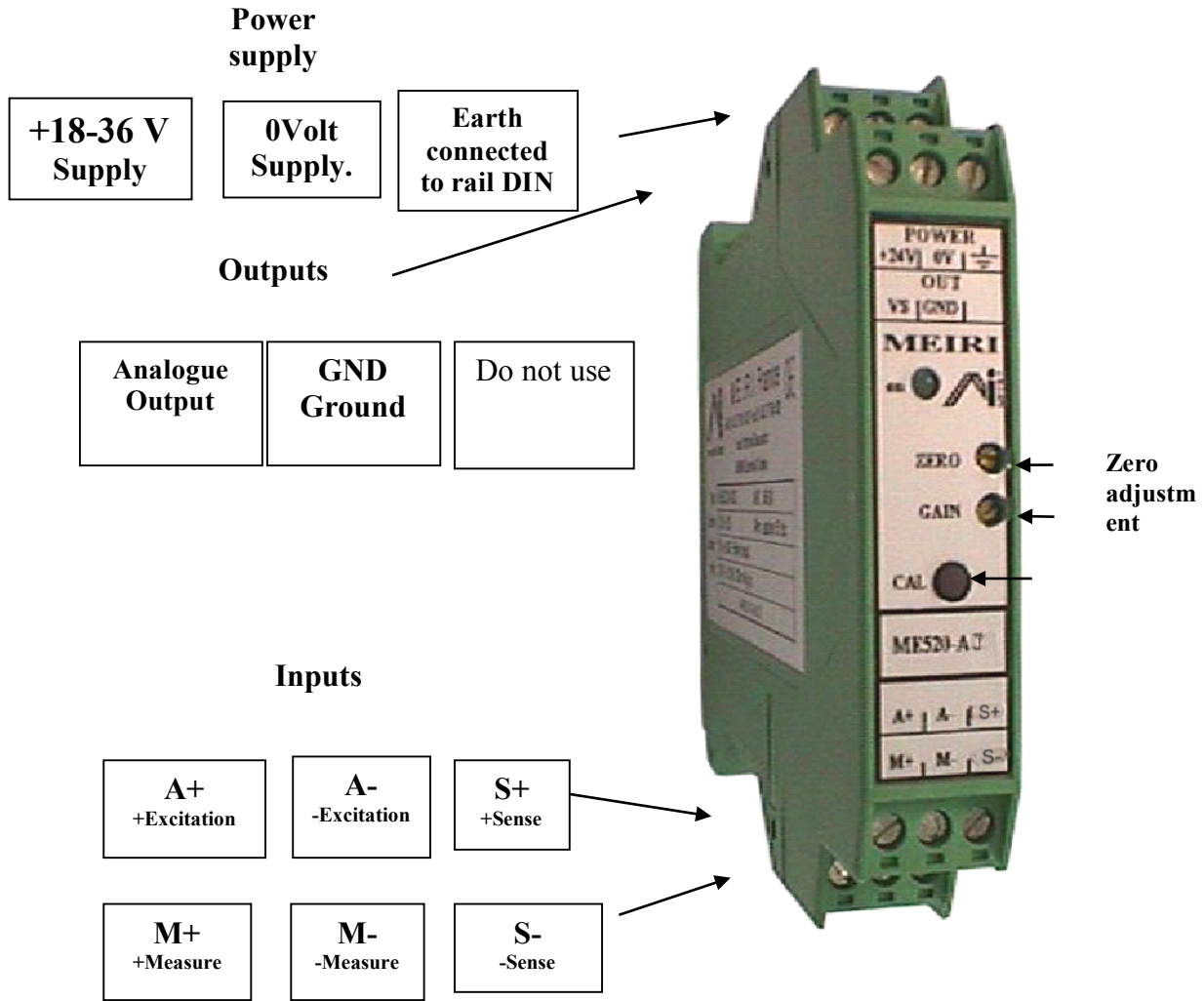
Sensitivity range 1 to 5

Sensor excitation voltage
5 V with with jumper
10V with jumper

Board jumper configuration

Sensitivity ranges	Sensitivity mV/V For Uexit= 10V Vout=10V	Sensitivity mV/V For Uexit = 5V Vout=10V	Calibration point mV/V
Range 1	0.1 à 0.3	0.2 à 0.6	0.1
Range 2	0.3 à 1	0.6 à 2	0.3
Range 3	1 à 3	2 à 6	1
Range 4	3 à 10	6 à 20	3
Range 5	10 à 30	20 à 60	10
Uexit = 5V		jumper on « Up5V » JP23	
Uexit = 10V		No jumper	
Bandwidth 2 kHz		jumper on « BP2K » JP24	
Bandwidth 20 kHz		No jumper	
Analog output ±10V		jumper on « SORTIE » U	
Analog output 4-20mA or 0 ±20mA		jumper on « SORTIE » i	
Zero offset and adjustment jumper « Dz »	Potentiometer	± 50% range in mV/V	
	Dz 1	+100% range in mV/V	
	Dz 2	+50% range in mV/V	
	Dz 3	-50% range in mV/V	
	Dz 4	-100% range in mV/V	

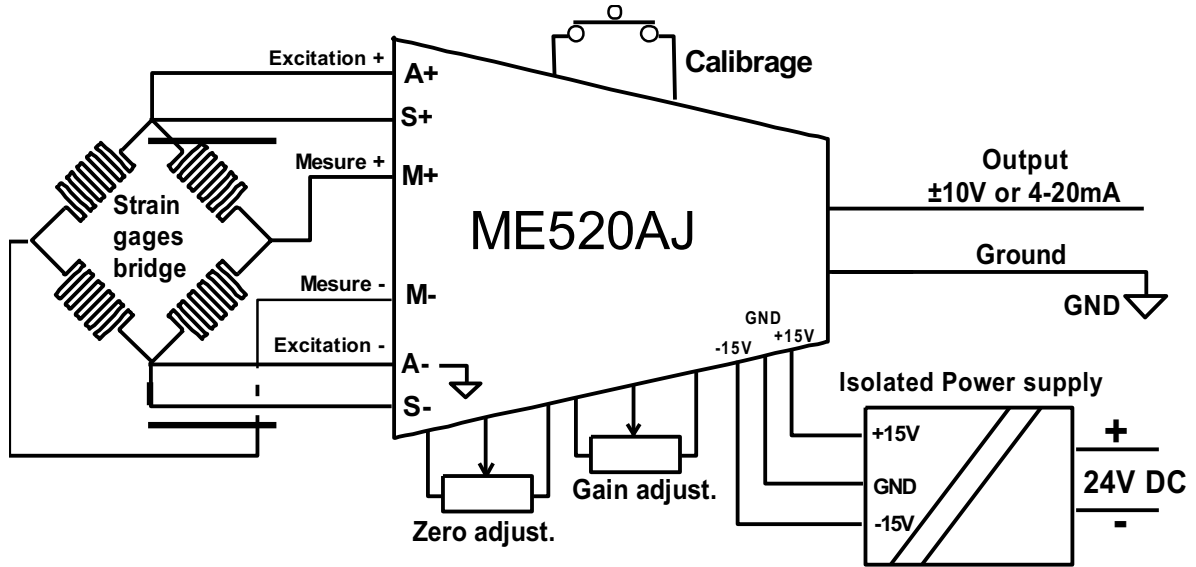
Connection of module ME520-AJ



CONNECTING 6-WIRES SENSORS

Connections : S+ connected to module A+
 S- connected to module A-
 Shield connected to A- or to GND of analog output

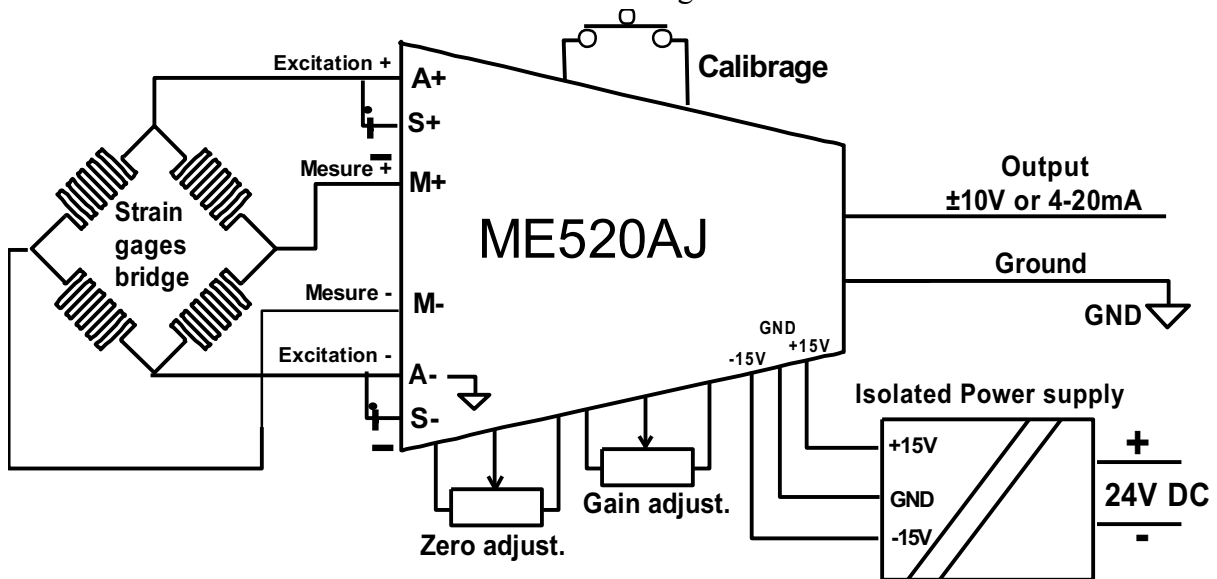
Nota : A- and GND are connected together inside the module.



CONNECTING 4-WIRES SENSORS

Connections : S+ connected to module A+
 S- connected to module A-
 Shield connected to A- or to GND of analog output

Nota : A- and GND are connected together inside the module.



END OF THE DOCUMENT