# Biometrics Ltd

## TECHNICAL SPECIFICATIONS

## PINCHMETER type no. P200

## HAND DYNAMOMETER type no. G200

## MYOMETER type no. M550

## FORCEPLATE type no. FP3

## FORCEPLATE type no. FP4

Including instructions on connecting the sensors to instrumentation not supplied by Biometrics Ltd.


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## WARNINGS

1. In general when connecting these sensors to any instrument the user must ensure that all appropriate electrical safety regulations are complied with.

2. In a medical application the user must ensure that all appropriate medical regulations are complied with. Any resulting system must conform to IEC601-1-1:1992 (Collateral Standard: Safety Requirements For Medical Electrical Systems).

3. No more than 10.0 Vdc must be supplied to the sensors or damage will result.

4. All 5 instruments are designed to be used in compression only. Under no circumstances should the instruments be used in tension otherwise damage will result.

5. Biometrics Ltd accepts no liability, or consequential liabilities for the loss, or effects of loss or corruption of data caused when using these instruments.

## SPECIFICATIONS

## PINCHMETER PART NO. P200

| | |
|---|---|
| Overall diameter | 48.0 mm |
| Diameter of button | 18.0 mm |
| Overall height | 7.0 mm |
| Material | stainless steel |
| Mass | 65g |
| Calibration | compression only |
| Rated load (RL) | 50 lbs or 22.68 Kg |
| Accuracy | better than +/- 0.5 % RL |
| Input impedance | 900 Ω |
| Output impedance | 700 Ω |
| Supply voltage maximum | 10.00 Vdc |
| Supply voltage minimum | 1.00 Vdc |
| Sensitivity | 1.50 mV/V differential output |
| Output with no load | +/- 10% RL |
| Current | 1 mA / V |
| Full Wheatstone Bridge arrangement | |
| Output socket | direct connection to cable H2000 or H2000FW |

## DYNAMOMETER PART NO. G200

Mechanical configuration based on Jamar style dynamometer

| | |
|---|---|
| Mass | 550g |
| Calibration | compression only |
| Rated load (RL) | 200 lbs or 90.72 Kg |
| Accuracy | better than +/- 1.0 % RL |
| Input impedance | 200 Ω |
| Output impedance | 200 Ω |
| Supply voltage maximum | 10.00 Vdc |
| Supply voltage minimum | 1.00 Vdc |
| Sensitivity | 1.50 mV/V differential output |
| Output with no load | +/- 10% RL |
| Current | 3.5 mA / V |

Full Wheatstone Bridge arrangement

| | |
|---|---|
| Output socket | direct connection to cable H2000 or H2000FW |

## MYOMETER PART NO. M550

| | |
|---|---|
| Mass | 220g |
| Calibration | compression only |
| Rated load (RL) | 110.23 lbs or 50.0 Kg |
| Accuracy | better than +/- 1.0 % RL |
| Input impedance | 360 Ω |
| Output impedance | 360 Ω |
| Supply voltage maximum | 10.00 Vdc |
| Supply voltage minimum | 1.00 Vdc |
| Sensitivity | 1.50 mV/V differential output for RL |
| Output with no load | +/- 10% RL |
| Current | 2.7 mA / V |

Full Wheatstone Bridge arrangement

| | |
|---|---|
| Output socket | direct connection to cable H2000 or H2000FW |

## FORCEPLATE PART NO. FP3

| | |
|---|---|
| Overall dimensions | 200 x 125 x 14 mm |
| Material | black anodized aluminium |
| Mass | 790g |
| Calibration | compression only |
| Rated load (RL) | 100Kg or 220lb |
| Accuracy | better than +/- 0.5 % RL |
| Input impedance | 100 Ω |
| Output impedance | 90 Ω |
| Supply voltage maximum | 10.00 Vdc |
| Supply voltage minimum | 1.00 Vdc |
| Sensitivity | 1.50 mV/V differential output |
| Output with no load | +/- 10% RL |
| Current | 10 mA / V |
| Full Wheatstone Bridge arrangement | |
| Output socket | direct connection to cable H2000 or H2000FW |

## FORCEPLATE PART NO. FP4

| | |
|---|---|
| Overall dimensions | 250 x 125 x 22 mm |
| Material | black anodized aluminium |
| Mass | 1560g |
| Calibration | compression only |
| Rated load (RL) | 250Kg or 550lb |
| Accuracy | better than +/- 0.5 % RL |
| Input impedance | 100 Ω |
| Output impedance | 90 Ω |
| Supply voltage maximum | 10.00 Vdc |
| Supply voltage minimum | 1.00 Vdc |
| Sensitivity | 1.50 mV/V differential output |
| Output with no load | +/- 10% RL |
| Current | 10 mA / V |
| Full Wheatstone Bridge arrangement | |
| Output socket | direct connection to cable H2000 or H2000FW |

***OPTION 1 for products P200, G200, M55, FP3 or FP4***

## Use of cable H2000FW (7 pin)

**Instructions for connecting the Biometrics' P200, G200, M550, FP3 or FP4 to instrumentation not manufactured by Biometrics Ltd using cable type no. H2000FW.**

The Output cable H2000FW is designed specifically to allow the user to interface the P200, G200, M550, FP3 or FP4 to instrumentation other than that supplied by Biometrics Ltd, where the user requires flying wires.

| | |
|---|---|
| cable | flexible grade PVC, |
| cable length | 2.0 m (custom lengths on request) |
| input plug | direct connection to P200, G200, M550, FP3 or FP4 |
| output | flying wires with colours as below |

| WIRE COLOUR | DESCRIPTION |
|---|---|
| RED | Supply Volts |
| BLACK | Common or Ground |
| BROWN | differential output +ve |
| ORANGE | differential output -ve |

***OPTION 2 for products P200, G200, M55, FP3 or FP4***

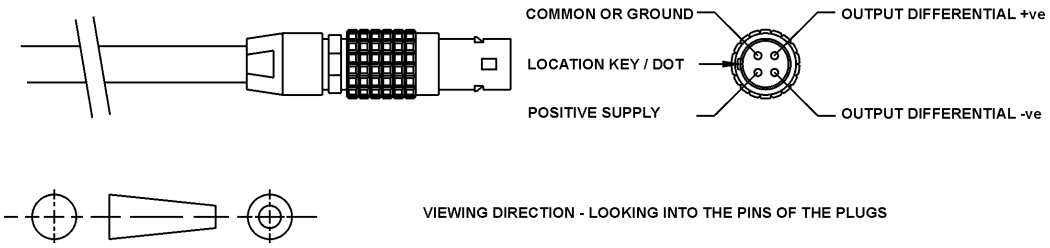
## Use of cable H2000

**Instructions for connecting the Biometrics' P200, G200, M550, FP3 or FP4 to instrumentation not manufactured by Biometrics Ltd using cable type no. H2000.**

The Output cable H2000 is designed specifically to allow the user to interface the P200, G200 or M550 to instrumentation other than that supplied by Biometrics Ltd, where the user prefers to use a 4 way Lemo plug.

| | |
|---|---|
| cable | flexible grade PVC, |
| cable length | 2.0 m (custom lengths on request) |
| input plug | direct connection to P100, G100 or M500 |
| output plug | Lemo type no. FGGOB304CLAD35 |
| or | ODU type no. S10LOC-T04MFDO-3200 |
| | 4 way (see below for connection schematic) |

## CONNECTION DETAILS for cable H2000 output plugs




## EXAMPLES OF SENSOR ELECTRICAL OUTPUT.

Example of Dynamometer G200 output:-
i.e. if the unit is supplied with 5.00 Vdc and a mechanical load applied of 100 lbs the differential output will change by + 3.75 mV or +0.00375 V.

Example of Pinchmeter P200 output:-
i.e. if the unit is supplied with 5.00 Vdc and a mechanical load applied of 10 lbs the differential output will change by + 1.50 mV or +0.00150 V.

Example of MyoMeter M550 output:-
i.e. if the unit is supplied with 5.00 Vdc and a mechanical load applied of 25 lbs the differential output will change by + 1.701 mV or +0.001701 V.

Example of ForcePLATE FP3 output:-
i.e. if the unit is supplied with 5.00 Vdc and a mechanical load applied of 75 Kg the differential output will change by + 5.625 mV or +0.005625 V.

Example of ForcePLATE FP4 output:-
i.e. if the unit is supplied with 5.00 Vdc and a mechanical load applied of 150 Kg the differential output will change by + 4.500 mV or +0.00450 V.

## ENVIRONMENT

Units not to be subject to autoclave sterilising techniques

| | |
|---|---|
| Operating temperature range | +10 °C to +40°C |
| Storage temperature range | -10 °C to +50°C |
| Operating humidity range | 30% to 75% |
| Storage humidity range | 10% to 100% |
| Atmospheric pressure range | operation 500 hPa to 1060 hPa |
| | storage 700 hPa to 1060 hPa |