

# METRON QA-90

## protokol o testu elektrické bezpečnosti

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## TEST RESULTS

### – MODULE INFORMATION –

| Module Code | Module Type | No of leads |
|-------------|-------------|-------------|
| 5 LEAD ECG  | CF          | 5           |
| SPO2        | CF          | 1           |
| P1          | CF          | 1           |

### – SETUP DATA –

|                                 |        |                                |      |
|---------------------------------|--------|--------------------------------|------|
| Power Up Delay Time             | : 2    | Stop after new power config    | : No |
| Stop at new module              | : No   | Stop before new power config   | : No |
| Multiple Protective Earth Tests | : No   | Multiple Enclosure Tests       | : No |
| Protective Earth test current   | : 25 A | External Isolating Transformer | : No |

| Test                              | Limit   | Result  | Warning |
|-----------------------------------|---------|---------|---------|
| <b>Supply Voltage</b>             |         |         |         |
| N-G                               |         | 0,1 V   |         |
| L-G                               |         | 227,6 V |         |
| L-N                               |         | 227,6 V |         |
| <b>Current Consumption</b>        |         | 214 mA  |         |
| <b>Protective Earth</b>           | 200 mΩ  | 102 mΩ  |         |
| <b>Insulating Resistance</b>      |         |         |         |
| Applied Part-Case                 |         | >200 MΩ |         |
| Applied Part-Case                 |         | >200 MΩ |         |
| Applied Part-Case                 |         | >200 MΩ |         |
| Mains-Case                        |         | >200 MΩ |         |
| <b>Earth Leakage Current</b>      |         |         |         |
| OS                                | 1000 μA | 155 μA  |         |
| NC                                | 500 μA  | 89 μA   |         |
| OS-RM                             | 1000 μA | 155 μA  |         |
| NC-RM                             | 500 μA  | 88 μA   |         |
| <b>Enclosure Leakage Current</b>  |         |         |         |
| OS                                | 500 μA  | 0 μA    |         |
| NC                                | 100 μA  | 0 μA    |         |
| OE                                | 500 μA  | 89 μA   |         |
| OS-RM                             | 500 μA  | 0 μA    |         |
| NC-RM                             | 100 μA  | 0 μA    |         |
| OE-RM                             | 500 μA  | 87 μA   |         |
| <b>Patient Leakage Current AC</b> |         |         |         |
| OS, Module : P1, Lead : 7         | 50 μA   | 0 μA    |         |
| OS, Module : SPO2, Lead : 6       | 50 μA   | 0 μA    |         |

**Patient Leakage Current AC (continued)**

|                                      |            |           |
|--------------------------------------|------------|-----------|
| OS, Module : 5 LEAD ECG, Lead : 5    | 50 $\mu$ A | 0 $\mu$ A |
| NC, Module : P1, Lead : 7            | 10 $\mu$ A | 0 $\mu$ A |
| NC, Module : SPO2, Lead : 6          | 10 $\mu$ A | 0 $\mu$ A |
| NC, Module : 5 LEAD ECG, Lead : 5    | 10 $\mu$ A | 7 $\mu$ A |
| OE, Module : P1, Lead : 7            | 50 $\mu$ A | 2 $\mu$ A |
| OE, Module : SPO2, Lead : 6          | 50 $\mu$ A | 2 $\mu$ A |
| OE, Module : 5 LEAD ECG, Lead : 5    | 50 $\mu$ A | 7 $\mu$ A |
| OS-RM, Module : P1, Lead : 7         | 50 $\mu$ A | 0 $\mu$ A |
| OS-RM, Module : SPO2, Lead : 6       | 50 $\mu$ A | 0 $\mu$ A |
| OS-RM, Module : 5 LEAD ECG, Lead : 5 | 50 $\mu$ A | 0 $\mu$ A |
| NC-RM, Module : P1, Lead : 7         | 10 $\mu$ A | 0 $\mu$ A |
| NC-RM, Module : SPO2, Lead : 6       | 10 $\mu$ A | 0 $\mu$ A |
| NC-RM, Module : 5 LEAD ECG, Lead : 5 | 10 $\mu$ A | 7 $\mu$ A |
| OE-RM, Module : P1, Lead : 7         | 50 $\mu$ A | 2 $\mu$ A |
| OE-RM, Module : SPO2, Lead : 6       | 50 $\mu$ A | 2 $\mu$ A |
| OE-RM, Module : 5 LEAD ECG, Lead : 5 | 50 $\mu$ A | 7 $\mu$ A |

**Mains on Applied Parts**

|                                         |            |           |
|-----------------------------------------|------------|-----------|
| SFC, Module : P1, Lead : ALL            | 50 $\mu$ A | 2 $\mu$ A |
| SFC, Module : SPO2, Lead : ALL          | 50 $\mu$ A | 3 $\mu$ A |
| SFC, Module : 5 LEAD ECG, Lead : ALL    | 50 $\mu$ A | 8 $\mu$ A |
| SFC-RM, Module : P1, Lead : ALL         | 50 $\mu$ A | 2 $\mu$ A |
| SFC-RM, Module : SPO2, Lead : ALL       | 50 $\mu$ A | 3 $\mu$ A |
| SFC-RM, Module : 5 LEAD ECG, Lead : ALL | 50 $\mu$ A | 8 $\mu$ A |

**Patient Auxiliary Current AC**

|                                      |            |           |
|--------------------------------------|------------|-----------|
| OS, Module : 5 LEAD ECG, Lead : 5    | 50 $\mu$ A | 0 $\mu$ A |
| NC, Module : 5 LEAD ECG, Lead : 5    | 10 $\mu$ A | 7 $\mu$ A |
| OE, Module : 5 LEAD ECG, Lead : 5    | 50 $\mu$ A | 7 $\mu$ A |
| OS-RM, Module : 5 LEAD ECG, Lead : 5 | 50 $\mu$ A | 0 $\mu$ A |
| NC-RM, Module : 5 LEAD ECG, Lead : 5 | 10 $\mu$ A | 7 $\mu$ A |
| OE-RM, Module : 5 LEAD ECG, Lead : 5 | 50 $\mu$ A | 7 $\mu$ A |

**Patient Auxiliary Current DC**

|                                      |            |           |
|--------------------------------------|------------|-----------|
| OS, Module : 5 LEAD ECG, Lead : 5    | 50 $\mu$ A | 0 $\mu$ A |
| NC, Module : 5 LEAD ECG, Lead : 5    | 10 $\mu$ A | 0 $\mu$ A |
| OE, Module : 5 LEAD ECG, Lead : 5    | 50 $\mu$ A | 0 $\mu$ A |
| OS-RM, Module : 5 LEAD ECG, Lead : 5 | 50 $\mu$ A | 0 $\mu$ A |
| NC-RM, Module : 5 LEAD ECG, Lead : 5 | 10 $\mu$ A | 0 $\mu$ A |
| OE-RM, Module : 5 LEAD ECG, Lead : 5 | 50 $\mu$ A | 0 $\mu$ A |

**Patient Leakage Current DC**

|                                      |            |           |
|--------------------------------------|------------|-----------|
| OS, Module : P1, Lead : 7            | 50 $\mu$ A | 0 $\mu$ A |
| OS, Module : SPO2, Lead : 6          | 50 $\mu$ A | 0 $\mu$ A |
| OS, Module : 5 LEAD ECG, Lead : 5    | 50 $\mu$ A | 0 $\mu$ A |
| NC, Module : P1, Lead : 7            | 10 $\mu$ A | 0 $\mu$ A |
| NC, Module : SPO2, Lead : 6          | 10 $\mu$ A | 0 $\mu$ A |
| NC, Module : 5 LEAD ECG, Lead : 5    | 10 $\mu$ A | 0 $\mu$ A |
| OE, Module : P1, Lead : 7            | 50 $\mu$ A | 0 $\mu$ A |
| OE, Module : SPO2, Lead : 6          | 50 $\mu$ A | 0 $\mu$ A |
| OE, Module : 5 LEAD ECG, Lead : 5    | 50 $\mu$ A | 0 $\mu$ A |
| OS-RM, Module : P1, Lead : 7         | 50 $\mu$ A | 0 $\mu$ A |
| OS-RM, Module : SPO2, Lead : 6       | 50 $\mu$ A | 0 $\mu$ A |
| OS-RM, Module : 5 LEAD ECG, Lead : 5 | 50 $\mu$ A | 0 $\mu$ A |
| NC-RM, Module : P1, Lead : 7         | 10 $\mu$ A | 0 $\mu$ A |
| NC-RM, Module : SPO2, Lead : 6       | 10 $\mu$ A | 0 $\mu$ A |
| NC-RM, Module : 5 LEAD ECG, Lead : 5 | 10 $\mu$ A | 0 $\mu$ A |
| OE-RM, Module : P1, Lead : 7         | 50 $\mu$ A | 0 $\mu$ A |
| OE-RM, Module : SPO2, Lead : 6       | 50 $\mu$ A | 0 $\mu$ A |
| OE-RM, Module : 5 LEAD ECG, Lead : 5 | 50 $\mu$ A | 0 $\mu$ A |

\*\*\*\*\* UNIT PASSED TEST! \*\*\*\*\*

**Remark :**

modul MMS M3001A v.è. DE51274066