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WARNING: BEFORE INSTALLING AND CONNECTING THE DEVICE TO THE POWER SOURCE, READ THE MANUAL CAREFULLY

WARNING: IF YOU DO NOT UNDERSTAND THE INFORMATION INCLUDED IN THIS MANUAL COMPLETELY, PLEASE CONTACT OUR TECHNICAL SUPPORT BEFORE INSTALLING THE DEVICE AND CONNECTING IT TO THE POWER SOURCE.

WARNING: NO PART OF THE GAS9 DEVICE CAN BE MODIFIED WITHOUT SELETEC S.R.L. APPROVATION

NOTE: THE .PDF FORMAT OF THIS MANUAL CAN BE DOWNLOADED FROM THE DOWNLOAD SECTION OF THE WEBSITE www.seletecmod.com
1. USE OF THE DEVICE

The Gas9 medical device has been designed to be used on medical gas distribution pipelines as monitoring and alarm system for abnormal pressure on supply system inside the gas central supply station or along the distribution lines, by controlling the pressure switch contacts status assembled by the pipeline manufacturer.

By using or removing a jumper on the terminal box the device can be programmed as an alarm signal on the feeding sources (which therefore request an intervention carried out by technical personnel only) or on the line, placed after every stop valve. Such alarms require the intervention of the clinical staff beside the intervention to be carried out by technical staff. Therefore the clinical staff must be opportunely trained by the medical gas pipeline manufacturer.

To work correctly, all versions of the Gas9 device must be placed in attended areas without noises that could drown out the alarm, inside wall modular control panels (Suggested code GW 40043 IP40) or built in control panels (Suggested code GW 40604 IP40) with reduced dimensions, suitable for containing the Gas9 device + protection fuse holder.

The control panel containing the Gas9 module must not hide the warning lights placed on the front part of the device and must be made of electrical insulating plastic material.
2. GENERAL TECHNICAL DATA AND TECHNICAL NORMS OF REFERENCE

Tab.2

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feeding tension</td>
<td>24Vac 50-60Hz – 24Vdc</td>
</tr>
<tr>
<td>Max. absorbed power</td>
<td>2 VA</td>
</tr>
<tr>
<td>Protection fuse F (*)</td>
<td>200mA T 250Vac</td>
</tr>
<tr>
<td>Recommended fuse holder (*)</td>
<td>Attacco Guida DIN (EN60715) Sezionale</td>
</tr>
<tr>
<td>Working temperature</td>
<td>0 a 40 °C</td>
</tr>
<tr>
<td>Transport and storing temperature</td>
<td>-10 a 60 °C</td>
</tr>
<tr>
<td>Operating, shipping and storage atmospheric pressure</td>
<td>10 a 75 % (Non condensante)</td>
</tr>
<tr>
<td>Operating, shipping and storage atmospheric pressure</td>
<td>500 a 1060 hPa</td>
</tr>
<tr>
<td>6 modules DIN front dimensions</td>
<td>45.2 x 105 mm</td>
</tr>
<tr>
<td>Minimal sound pressure level</td>
<td>75dB</td>
</tr>
<tr>
<td>Front protection degree</td>
<td>IP20</td>
</tr>
<tr>
<td>Self-extinguishing plastic case</td>
<td>NORYL Resin HF185</td>
</tr>
<tr>
<td>Case dielectric strength</td>
<td>16kV/mm</td>
</tr>
<tr>
<td>Colour</td>
<td>Grigio RAL7035</td>
</tr>
<tr>
<td>Assembly on OMEGA-guide</td>
<td>DIN (EN60715)</td>
</tr>
</tbody>
</table>

(*) Parts to be used in case the device used to feed the Gas9 is not provided with a protection device of its own. Fuse not provided together with the Gas9 unit and must be provided by the customer.

DIRECTIVES AND TECHNICAL NORMS OF REFERENCE:
- Medical device directive 93/42/CEE and 2007/47 CEE
- UNI EN ISO 7396-1:2013 Medical gases distribution plants
- IEC EN60601-1:2007 Medical electrical equipments: General safety norms
- IEC EN60601-1-2:2010 Medical electrical equipments: Electromagnetic compatibility
- IEC EN60601-1-8:2009 Medical electrical equipment: Alarm systems
- IEC EN62304:2006 Medical device software
- IEC UNI EN ISO 14971:2012 Application of risk management to medical devices
- IEC EN 62366:2008 Application of usability engineering to medical devices

Warning: In order to assure the compliance of the Gas9 with EN60601.1, the electric transformer or the power supply used must comply with EN60601-1 III Ed. and they must be installed in the same double insulated control unit, both if wall control unit or built in, in which the Gas9 alarm device is installed.

3. ELECTRIC CONNECTIONS
Tab. 3

<table>
<thead>
<tr>
<th>Morsettto</th>
<th>Riferimento</th>
<th>Funzione</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-</td>
<td>Pressure switch feeding out 24Vac/dc</td>
</tr>
<tr>
<td>2 to 26</td>
<td>-</td>
<td>GND</td>
</tr>
<tr>
<td>5</td>
<td>CA1</td>
<td>Pressure switch contact input. The active alarm status corresponds to LED 1 on</td>
</tr>
<tr>
<td>6</td>
<td>CA2</td>
<td>Pressure switch contact input. The active alarm status corresponds to LED 2 on</td>
</tr>
<tr>
<td>7</td>
<td>CA3</td>
<td>Pressure switch contact input. The active alarm status corresponds to LED 3 on</td>
</tr>
<tr>
<td>8</td>
<td>CA4</td>
<td>Pressure switch contact input. The active alarm status corresponds to LED 4 on</td>
</tr>
<tr>
<td>9</td>
<td>CA5</td>
<td>Pressure switch contact input. The active alarm status corresponds to LED 5 on</td>
</tr>
<tr>
<td>10</td>
<td>CA6</td>
<td>Pressure switch contact input. The active alarm status corresponds to LED 6 on</td>
</tr>
<tr>
<td>11</td>
<td>CA7</td>
<td>Pressure switch contact input. The active alarm status corresponds to LED 7 on</td>
</tr>
<tr>
<td>12</td>
<td>CA8</td>
<td>Pressure switch contact input. The active alarm status corresponds to LED 8 on</td>
</tr>
<tr>
<td>13</td>
<td>CA9</td>
<td>Pressure switch contact input. The active alarm status corresponds to LED 9 on</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Morsettto</th>
<th>Riferimento</th>
<th>Funzione</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td></td>
<td>Power supply</td>
</tr>
<tr>
<td>18</td>
<td></td>
<td>24Vac - dc</td>
</tr>
<tr>
<td>19</td>
<td>RAC</td>
<td>Output +24Vac cumulative clinical remote alarms – MAX 30mA. OFF if alarm ON</td>
</tr>
<tr>
<td>20</td>
<td>RAO</td>
<td>Output +24Vac cumulative operative remote alarms= MAX 30mA. OFF if alarm ON</td>
</tr>
<tr>
<td>21</td>
<td>-</td>
<td>NOT USED</td>
</tr>
<tr>
<td>22</td>
<td>-</td>
<td>NOT USED</td>
</tr>
<tr>
<td>23</td>
<td></td>
<td>Connect clamp 24 to clamp 26 to enable the device clinical alarms mode. Without any connection the device will work in operative alarm mode.</td>
</tr>
<tr>
<td>24</td>
<td></td>
<td>Operative alarms sound reset control Connect clamp 25 to 26 to DISABLE the alarm sound reset if the OPERATIVE alarm lasts longer than 14 minutes. Without any connection reset is enabled.</td>
</tr>
<tr>
<td>A</td>
<td>A</td>
<td>A RS485 terminal</td>
</tr>
<tr>
<td>B</td>
<td>B</td>
<td>B RS485 terminal</td>
</tr>
<tr>
<td>Gnd</td>
<td>Rs485</td>
<td>GND Rs485 terminal</td>
</tr>
</tbody>
</table>

4. ELECTROMAGNETIC DISTURBANCES PREVENTION

- The device complies with EN60601-1-2:2010 Electronic medical devices: Electromagnetic compatibility, according with the results listed in the test report EMCTR_140745-0 available on request.

In order to avoid malfunction, do not install the device near NMR machines, CAT or any other device generating strong electromagnetic fields. Also avoid running the cables that connect the pressure switches to the Gas9 device parallel to the power feeding cables and/or motor control cables and inductive loads in general. Comply with what described at paragraph 6.4 NOTES FOR THE CORRECT BUS FUNCTIONING.

5. PRODUCT CLASSIFICATION

The GAS9 is provided with an electric protection type class II, does not have any protection degree against liquid penetration (IPx0), is not suitable to be used with a flammable anesthetic mixture with air or oxygen or with nitrogen protoxide and has been built for continuous use.

6. DEFAULT SETTINGS

The device as sent from our premises is programmed as follows:

- Clinical emergency mode (red Led)
- Active alarms with open contacts
- Cumulative reports ON if no alarm is active
- Active alarm storage (to reset the alarm press the alarm silencing button)
- Restore acoustic alarm enabled

7. GENERAL FUNCTIONAL CHARACTERISTICS

1. Working mode selection: Clinical/operative alarm (by means of a jumper on the terminal box); see note D page 5
2. Green Led beside “Ready” message to indicate device working and red or yellow led on blinking to indicate alarm detected. If the red or yellow led are off no alarm has occurred.
3. The internal TEST button is meant to carry out a preliminary device efficiency test. By pressing it all the acoustic alarm/night alarm functions of the module are activated, including the cumulative remote clinical and operative alarms. In order to avoid accidental activation, to carry out the test press the button by introducing into the hole located in the lower right part of the front panel of the device, a tool longer than 2 cm and with a diameter less than 2.5 mm.
4. RESET button to stop the acoustic signal and to reset the saved alarms if no longer valid and if the auto reset function is disabled (see. point 11).

For further details and explanations see paragraph 7 and 8.
5. The acoustic signal activates every time a new alarm condition occurs.

NOTE: In case there were 2 or more alarms on at the same time, the acoustic signal indicating a clinical alarm is always overriding the one indicating an operative alarm.

6. Sound reset with OPERATIVE alarm on for more than 14 minutes; see note E page 5.

Sound reset activation:
- As a default option, if there is an alarm on, the alarm sound is disabled by pressing the RESET button. If there is no jumper between clamps 25 and 26 and if the alarm condition lasts longer than 14 min., the alarm sound is automatically re-enabled.
- If, when the Gas9 device is enabled, there is a jumper between clamps 25 and 26 and if the OPERATIVE alarm condition is still present during a period of time longer than 14 min., the alarm sound will not be re-enabled.

NOTE: for emergency clinical alarms and operative emergency alarms the sound re-enabling function is always enabled, complying with point 6.3.2.4 of EN7396-1:2013.

Only by restarting the device by pressing the TEST and RESET buttons at the same time the disabling of sound alarm for clinical alarms can be enabled too. When this function is enabled, on the "ready" led will flash rapidly a green light on the device as long as the option is active.

To disable the option press the RESET button and keep it pressed for 2.5 seconds or restart the device.

7. Source type static outputs (+24Vdc ±10%) in active safety mode to manage any cumulative clinical and operative alarm reports. The clinical alarm report output is disabled when one or more clinical or clinical emergency alarm is on or in case of power loss. The active alarm report output is disabled with one or more operative alarm enabled or in case the power supply to the device is interrupted.

Maximum current supplied for each channel 30mA.

8. Alarms enabled when pressure switches contacts are open;

9. Alarm storage: once the alarm condition is no more present, the same is signaled until the operator does not press the reset button.


NOTE: The activation of all the function signals listed above can be done as follows:
- By turning the device off, carrying out the setting operations needed and restarting the device (valid for all settings).
- By carrying out the setting operations needed and by pressing RESET and keeping it pressed for 8 seconds (valid for all settings EXCEPT FOR the ones regarding communication [speed, parity, bit stop]).

The system restart procedure is indicated by showing the firmware version used on the micro controller by turning on the yellow LEDs for 2 seconds.

8. VISUAL INDICATORS MEANING AND FRONT BUTTONS USE

<table>
<thead>
<tr>
<th>Led</th>
<th>Color and activation mode</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ready</td>
<td>Fixed green light for 8 seconds flashing 3 times swiftly every 9 seconds approx.</td>
<td>Device powered and working</td>
</tr>
<tr>
<td>Ready</td>
<td>Green continuous fast flashing light</td>
<td>Acoustic signal reset disabling option enabled for clinical and operative emergency alarm</td>
</tr>
<tr>
<td>Ready</td>
<td>Off</td>
<td>No power supply to the circuit card or powered but not working</td>
</tr>
<tr>
<td>1,2,3,4,5,6,7,8,9</td>
<td>Red flashing light</td>
<td>Emergency clinical alarm detected</td>
</tr>
<tr>
<td>1,2,3,4,5,6,7,8,9</td>
<td>Yellow flashing light</td>
<td>Operative alarm detected.</td>
</tr>
<tr>
<td>1,2,3,4,5,6,7,8,9</td>
<td>Off</td>
<td>No alarm detected</td>
</tr>
<tr>
<td>BUTTON</td>
<td>ACTION</td>
<td>EFFECT</td>
</tr>
<tr>
<td>--------</td>
<td>--------</td>
<td>--------</td>
</tr>
<tr>
<td>Test</td>
<td>Press and release using a tool longer than 2 cm and with a diameter of less than 2.5 mm.</td>
<td>All the RED led and the buzzer as operative alarm turn on alternating with all the YELLOW led and the buzzer as operative alarm. Cumulative clinical and operative report outputs OFF.</td>
</tr>
<tr>
<td>Test +</td>
<td>Both buttons pressed at the same time and device powered → Release of the buttons when the yellow led 9 and 10 turn on red and yellow alternatively</td>
<td>Acoustic alarm disable option activation for clinical and emergency operative alarms. Led READY flashing fast</td>
</tr>
<tr>
<td>Reset ( ), Press and release</td>
<td></td>
<td>Acoustic alarm reset, alarm Reset with corresponding led turned off, TEST mode Reset</td>
</tr>
<tr>
<td>Reset ( ), Keep pressed for 2.5 seconds</td>
<td></td>
<td>The green Ready led does not flash anymore. The disable acoustic alarm option for clinical alarms and operative emergency alarms is disabled</td>
</tr>
<tr>
<td>Reset ( ), Keep pressed for 8 seconds, until the firmware version is displayed on the microprocessor and release</td>
<td></td>
<td>Enabling of the options listed in the previous paragraph 6, without having to restart the device except for the ones concerning communication (speed, parity, bit stop)</td>
</tr>
</tbody>
</table>

9. OPTIONS

The GAS9 device can be equipped with the following optionals:

1. GAS9.R remote alarms mode

Report modules for visualization and remote control of the alarm status acquired by the GAS9 by means of Selebus protocols on RS485 serial line and to report these alarms on Modbus RTU protocol. Please refer to the GAS9 R manual for further details.

Each GAS9 can send its inputs status to one or more GAS9 R report modules.

2. eMAS.eVo TESTER

Module to connect to the GAS9 to check the device functionalities by simulating the pressure switches contacts (both opened and closed)

WARNING:

1. USING ANY ACCESSORY NOT LISTED ABOVE IS STRICTLY FORBIDDEN AND INVALIDATES THE WARRANTY
2. FOR DETAILS ABOUT THE USE OF EACH OF THE PREVIOUS ACCESSORIES, PLEASE REFER TO THE PRODUCT DETAILS PROVIDED WITH THE DEVICE ITSELF

10. DEVICE INSTALLATION AND OPERATION

The device installation must be carried out by qualified personnel who have received the minimal technical and professional training to comply with the existing law regarding pipelines (DM 37/08, ex L. 46/90) carrying out the following procedure:

1. Make sure that the cables used to connect the device to the mains are not connected.
2. Remove the device from the box. Check that the manual for the Gas9 and the adhesives that show the alarms identification are included.
3. Check that the case containing the device is not damaged, that the labels on the front panel are readable and that the lock device to the DIN guide is included.
4. If the device is used in CLINICAL MODE no further operation is needed. To enable the OPERATIVE ALARM MODE connect clamps 24 and 26 by means of a jumper.
5. Place on the front panel the adhesives corresponding to the alarms that you want to monitor.
6. Couple the device on the DIN bar located inside the modular control unit.
7. Make the electrical connections as per ELECTRICAL CONNECTION on page 3

NOTE: the GAS9 device alarms are enabled with open contacts only. Connect to clamp 1 any inputs not used

NOTE: use only pressure switches with working tension not less than 24 Vdc. Power the pressure switches by connecting them to clamp 1 of the GAS9 device. Each GAS9 can feed max. 9 pressure switches.

NOTE: The feeder or the transformer that feed the device must comply with IEC 60601 III edition GENERAL REQUIREMENTS FOR BASIC SAFETY AND ESSENTIAL PERFORMANCE.
8. In case the feeding device were not provided with short circuit and overload protection, insert a protection fuse making sure it complies with what stated on point 3 of table 2 GENERAL TECHNICAL DATA AND TECHNICAL NORMS OF REFERENCE on page 2 and that it is connected on the positive pole of the feeding source.

9. Make sure that the alarm device is connected both to the normal power supply and to the emergency power supply, as per point 6.2.3 of EN 7396-1:2013.

10. Connect the device to 24Vac/dc power source.

11. IF NO ALARM IS ON, THE ONLY GREEN LED ON MUST BE THE ONE LOCATED ON THE FRONT PANEL NEAR THE LABEL “Ready”. Please refer to tab. 4 paragraph 8

8) Carry out the emergency operative alarms and or clinical alarms tests according with D.14.1 e/o D.14.2, EN 7396-1:2013

**IF ANY INCONGRUITY WITH WHAT ABOVE DESCRIBED IS DETECTED ON THE DEVICE, PLEASE INFORM THE TECHNICAL MAINTENANCE MANAGER OR THE PERSON IN CHARGE OF THE DEVICE MAINTENANCE IMMEDIATELY**

11. **SELEBUS PROTOCOL COMMUNICATION**

   a. **Protocol characteristics**
      Multimaster Bus based on standard RS485 with transmitted/received data integrity test by CRC16 algorithm and 38,4KBps speed.
      The bus is used to report the alarm status present on the master module Gas9 to the slave report modules Gas9 R.
      A maximum of 9 Master modules can be connected to a single bus. One or more slave modules with the same network address can correspond to one master.
      THE MAXIMUM NUMBER OF DEVICES THAT CAN BE CONNECTED TO THE NETWORK, BOTH SLAVE AND MASTER, IS 30.
      There is no limit to the devices addressing and on their positioning except that there cannot be 2 or more masters with the same network address.
      The master unit sends the input status to the slave units:
         1. Upon event (enable/disable one or more alarms).
         2. Cyclically with a random time ranging from 0,5 to 18 sec.
         3. By pressing and releasing the RESET button
      **N.B:** The network length and the number of masters connected could increase the time needed to send the data to avoid collisions between data transmissions

   b. **Timeout alarm (no communication) [FOR Gas9 R DEVICES ONLY]**
      The timeout alarm indicates the lack of communication between a slave and its corresponding master. This alarm is divided into first and second level and is indicated only on Gas9 R devices.
      - The second level alarm is activated to indicate problems that do not allow the device to work on the network. (For instance, corresponding master not working, interrupted bus, wrong address settings)
      - The first level alarm indicates that the bus is not working efficiently (for instance due to problems caused by wrong endings, bus cables placed near electric noise sources, network too large, cable between bus and device too long) and so that there are problems that do not prevent the device from working, but reduce its performance.
      For any further detail please refer to the instruction manuals of the devices mentioned above.

   c) **Impostazione indirizzo di rete SELEBUS**
      **The addresses that can be set by means of the right rotative dip, are:** 1; 2; 3; 4; 5; 6; 7; 8; 9
      On 0 the SELEBUS protocol is disabled even with SELEBUS led on (see point V below).
      With Selebus communication on, if when turning on the device an address bigger than 9 is detected, the red led LD1 will flash. Changing the address and setting it to a value less than or equal to 9, the red led will turn off and the protocol will be enabled.

   d) **SELEBUS activation procedure**
      I. Disconnect the Gas9 from the power source from which you want to send the alarms and from the corresponding report modules Gas9 R and wait a few seconds (the green led on the front panel of the device turns off).
II. Set an univocal address different from 0 and not bigger than 9 on the Dip-switch.

III. Connect the bus pair to the terminal block RS485 of the Gas9 device making sure to connect to clamp A the wires that correspond to line A on the 485 bus and to clamp B the wires corresponding to line B of bus 485. Make sure that the 2 wires corresponding to clamp A and to clamp B, are fixed to their corresponding clamps by welding or crimping them.

IV. Connect the Master device and the corresponding Slave devices to the power source (the green Led on the front panel of the device turns on with fixed light on for 8 seconds and with 2 flashes every 9 seconds).

V. Check that the green led SELEBUS ON located on the right lower part of the screen is on.

VI. Simulate one or more alarms in order to check its correct transmission to the report modules

**NOTE:** dip-switch 4 does not carry out any function as communication speed and parity cannot be modified

**WARNING:** GUIDE NOTES FOR A CORRECT FUNCTIONING OF BUS RS485 (SELEBUS or MODBUS)

1. **DURING THE ELECTRICAL CONNECTION OF THE DEVICE TO THE NETWORK MAKE SURE THAT THE BUS CABLES DO NOT GET INTO ELECTRIC CONTACT BECAUSE, IF THERE WERE OTHER DEVICES POWERED AND CONNECTED TO THE BUS, THEIR TRANSCIEVER COULD BE DAMAGED.**

2. **PAY ATTENTION TO PROGRAM UNIVOCAL ADDRESSES, WHICH MEANS NOT PROGRAMMED FOR OTHER SLAVE CONNECTED TO THE SELEBUS.**

3. **IF THE MODULE IS PHYSICALLY PLACED AT ONE END OF THE COMMUNICATION NETWORK, IT COULD BE NECESSARY TO CLOSE THE NETWORK BY CLOSING THE JUMPER LOCATED ON THE LEFT SIDE OF THE TERMINAL BOX BY MEANS OF THE CAP PROVIDED TOGETHER WITH THE DEVICE, AS STATED BY STANDARD EIA RS485.**

4. **FOR THE BUS USE A TWISTED CABLE PROVIDED WITH 2 PAIRS SPECIFIC FOR COMMUNICATION RS-485 WITH AWG24 MINIMUM SECTION AND CHARACTERISTIC IMPEDANCE 120Ohm. SUGGESTED CABLES TYPE BELDEN 9842 OR BELDEN 3106A**

5. **FOR DISTANCES LONGER THAN 100mt IN ELECTRICALLY DISTURBED ENVIRONMENTS IT COULD BE NECESSARY TO USE A CABLE THAT COMPLIES WITH WHAT DESCRIBED AT POINT 4 BUT PROVIDED WITH A SCREEN TOO IN ORDER TO INCREASE THE IMMUNITY TO THE NOISE. The screen must be connected to ground wire at one point only on the master side.**

6. **EVEN IF RS485 IS A DIFFERENTIAL LINE, IT IS RECOMMENDED TO USE A THIRD WIRE (Gnd) IN ORDER TO AVOID DIFFERENT POTENTIAL REFERENCES ON THE DIFFERENT PARTS OF THE BUS (common mode voltage)**

7. **CONNECT THE DEVICES TO THE NETWORK BY MULTIDROP, AVOIDING A TO STAR CONNECTIONS: THIS MEANS THAT THE 2 WIRES OF THE PAIR NEED TO BE CONNECTED TO THE DEVICE FOLLOWING THE BUS POLARITY (A to A and B to B); FROM THIS RUN 2 MORE WIRES 2 AND CONNECT THEM TO THE SECOND DEVICE AND SO ON UNTIL YOU REACH THE LAST ONE OF THE LINE.**

8. **AVOID CONNECTING THE BUS PARALLEL OR NEAR CABLES CONNECTED TO STATIC SPEED CONTROL SYSTEM (INVERTER), ELECTRICAL MOTORS, NEON LAMPS AND POWER LINES IN GENERAL AS THEY CREATE NOISE THAT COULD REDUCE THE BUS EFFICIENCY OR STOP IT FROM WORKING.**

9. **CONNECTION DIAGRAM.**

For further technical information please refer to the “Modbus_over_serial_line” guide, that can be downloaded from Modbus.org (www.modbus.org) for free.
12. DEVICE MAINTENANCE AND FUNCTIONING TESTS

In order to guarantee the device complete functioning and durability it is recommended to have qualified personnel to carry out the following tests every three months:

1) **“Ready” LED TEST**
   Check that the led on the front panel of the device, located on the left side of the Ready label, is on with GREEN FIXED LIGHT for approx. 8 flashes for 1 second and that it repeats the cycle “8 seconds ON 1 flash”. If it is COMPLETELY OFF, after having disconnected the device from the power source, check that there is no short circuit between clamp 16 and 18 by using an ohmmeter. Check that the same are correctly fixed.
   In case of positive result, if connecting the device to the power source does not solve the problem, check with a voltmeter the value between clamp 16 and 18 of the device and make sure it is 230Vac ±10. In case of a negative result it is necessary to check the cause of the lack of tension before the Gas9 device.
   If the green led FLASHES continuously, make sure that any other load connected do not absorb a power of more than 30mA or that there are no short circuits or overloads on the connections between the Gas9 and the external devices.
   If none of the above described problems is detected, replace the Gas9 with a new one.

2) **CHECK LABELS READABILITY**
   Check that the labels on the front part are readable. In case there is some dirt that compromises the label readability, clean the front panel using a cloth and a non-aggressive detergent.

3) **ACOUSTIC ALARM TEST**
   Carry out the device TEST, as described at Paragraph 6 and in table 5 of Paragraph 8 of this document, and check that the acoustic signal turns on intermittently and check that the red led and the yellow turn on alternatively on the device front panel. Press the RESET button to silence the acoustic signal and turn off the led. Formalize test results using a D.14.1 module of norm EN 7396-1:2007.
   **NOTE:** In case there are active alarms, the corresponding led will not turn off by pressing the Reset button.

4) **INPUT AND OUTPUT FUNCTIONING TEST**
   To check that all the inputs of the device are correctly working it is appropriate to simulate alarms either by using the eMAS.eVo TESTER or by closing and opening the contacts of clamps from 5 to 13.
   With every simulated alarm the internal auditory signal must turn on, the corresponding led located on the front panel of the Gas9 must flash, the cumulative alarm output must turn off (if in use) and, in case selebus or Modbus have been enabled, the alarm status on the corresponding report device.

<table>
<thead>
<tr>
<th>Corrispondenza</th>
<th>Morsetto</th>
<th>Led</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>1</td>
<td>O</td>
</tr>
<tr>
<td>6</td>
<td>2</td>
<td>O</td>
</tr>
<tr>
<td>7</td>
<td>3</td>
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</tbody>
</table>

**QUIF ANY INCONGRUITY WITH WHAT ABOVE DESCRIBED IS DETECTED ON THE DEVICE, PLEASE INFORM THE TECHNICAL MAINTENANCE MANAGER OR THE PERSON IN CHARGE OF THE DEVICE MAINTENANCE IMMEDIATELY**

**IT IS RECOMMENDED TO COMPLY WITH WHAT STATED IN THE NORM EN11100 GUIDELINES WHEN APPLICABLE “Guidance to periodic and acceptance tests of safety and performance of medical devices - pipelines for compressed medical gas and vacuum” Chapter “Functioning check” paragraphs “Alarm panels check” and “Monitoring and alarm system functioning check”**.

13. PRODUCT STORING

<table>
<thead>
<tr>
<th>Storing temperature</th>
<th>-10 to 60 °C</th>
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</thead>
<tbody>
<tr>
<td>Storing relative humidity</td>
<td>10 to 75 % (Non condensing)</td>
</tr>
<tr>
<td>Storing atmospheric pressure</td>
<td>500 to 1060 hPa</td>
</tr>
</tbody>
</table>
14. PRODUCT UNINSTALLATION AND DISPOSAL

The device that has reached the end of its life, estimated as 10 years, must be disposed complying with the laws in force in the countries where it is installed and used, especially in UE countries, according with the prescriptions contained in the 2002/96 DIERCTIVES OF THE EUROPEAN PARLIAMENT AND COUNCIL of January 27th 2003 on the Waste of electric and electronic equipment (WEEE), s.m.i..

Uninstall the product as follows: disconnect from the power source by opening PHASE and NEUTRAL wire at the same time, open the module case, unscrewing the fixing screws, remove the module connectors, pushing the pin located on the module base, remove it from the DIN guide.

15. PRODUCT WARRANTY

1. The product average life, if it is used according with what described in this manual, is estimated as 10 years starting from its activation. Even if the device has been designed following all the prevention methods necessary to its protection, some conditions non depending directly from it could reduce its working life significantly, such as quality of the electric tension of the electrical power system to which the device is connected (fluctuation, harmonic, tension gap) and overloads or short circuits on the report outputs or on the inputs due to wrong connections.

2. The manufacturer shall not be held reliable for damages due to incompetence or wrong installation.

3. The device is covered by warranty against manufacturing defects detected by 12 months from the delivery. Any alteration of the device or damage caused by wrong installation, implies immediate warranty decay.

4. The warranty grants the repairing of the device at our premises only or the replacement of the product. Any intervention of our technical staff is excluded.

5. If the product is considered defective, whether still under warranty or not, please contact our sales support to obtain the authorization to ship it back to us. The defective product must be sent to our premises at customer’s charge, together with some indications about the problem detected (please request to our sales support or download from www.seletecmod.com the document Mod.416 “Inspection and repair request”).

SELETEC Srl reserves the right to carry out any modification at any time that can improve the quality and functions of the product complying with the norms in force.

SELETEC Srl forbids the improper use or the reproduction of this manual or its parts without authorization.
SELETEC S.r.l.

Electronic systems and electronic devices

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