Control system Type: Nitromat-M

Function:

The **Nitromat-M** is a single-channel measuring and control system for furnace atmosphere controlling Nitriding-or Nitro carburizing processes.

By switch settings on the backside of the instrument, **Nitromat-M** can be easily adapted to different sensor connections. The program controls of temperature and hydrogen, with program tracks for NH3 - N2 - Endogas - CO2 , etc. eligible, is a propitious possibility for control Nitriding-or Nitrocarburizing atmospheres in furnaces.

Special features:

- Menu-guided operation
- Foil keyboard
- Exact control
- Connections of two thermocouples by choice
- Input for MESA H_2 -measuring system
- Program memory with 99 set point programs for H_2 - and process temperature (time synchronous)
- Program tracks, free eligible
- Position-proportional control
- ON/Off-PID-control
- Transfer outputs
- Options:
    - Set point generator for process temperature
    - Serial interfaces(RS422/RS485)

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V1.2 01-2021   page 1

Control system Type: Nitromat-M

Technical Data:

Construction:
Type of protection of the front is IP 43

Dimensions:
144 x 144 x 300 mm (l x w x h)

Auxiliary voltage:
230 Vac ± 10 % 50/60 Hz

Power consumption:
About 15 VA

Input signals (selected by means of switch setting):

Analog (in following combinations):
- H_2 analyzer
- Thermocouple, type K or S
- Terminal temperature (Pt 100)
- External set value: analog or through serial Interface

Digital:
- IN 0: program release with set point program in progress: otherwise, controller locked
- IN 1: program continuation in succession
- IN 2: input disable

Measuring range:
0...80 % H2

Output signals:

Analog:
- selected, 0 to 20 mA,
4 to 20 mA or 0 to 10 Vdc
- for the H2 –Value

Option:
- Output for the set point generator for process temperature, 0 to 20 mA or 4 to 20 mA

Switching outputs:

- 5 control tracks freely available
- 2 switching outputs for 1 motor valve for gas or solenoid valves for ammonia and H2
- Signal actual values in tolerance range
- Signal program active
- Signal Alarm indication
(all outputs "open collector" 24 V / 100 mA)

Serial interface (option):
- RS 232
- RS 422 / RS 485

Display:
Graphical LCD display with 160 x 128 pixels

Operation:
Five keys (soft keys) with user guidance (menu guidance);
respective function of the keys indicated on display

Set point:
- 4 preset points for C level
- 99 set point programs for H_2
- profiles,
  internally storable and recallable;
  (program travel time per program: up to 100 h)
- 23 segments / program
- External entry by means of program generator, for example, 0...20 mA, 4...20 mA, 0...10 V.

Climate:
Storage: -10...+60 °C
Operation: 0...+50 °C
5...95 % relative humidity, non-condensing

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V1.2 01-2021   page 2