NIEUWKOOP

METEN.NL

USER MANUAL

ZZ3000

MICROPROCESSOR

TO MEASURE = TO KNOW

HD9022 MICROPROCESSOR

CONFIGURABLE CONTROLLER

The microprocessor-controlled panel instrument HD9022 is an indicator with alarm threshold that may be programmed and configured by the user. At input it accepts signals arriving from transmitters with two or three wires, in voltage 0-1V, 0-10V or in current 0-20mA, 4-20mA. Configuration is always completely present in the instrument, no additional cards are required. The choice for the configuration of the input signals is made by means of the keyboard on the front of the instrument.

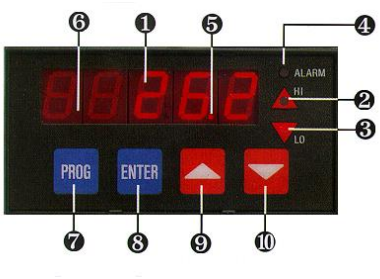
The dimensions of the instrument are 96x48mm with depth 145mm in conformity with DIN 45700. The mode of operation of the HD9022 is chosen depending on the application, configuring the instrument with the keyboard. The instrument may also be reconfigured with absolute simplicity on the field in order to adapt it to changes in processing requirements. The configuration involves the input, the scale range, the set point and the auxiliary outputs.
The HD9022 panel instrument is compact, versatile, precise and simple to program.

APPLICATIONS.
Typical applications are the display of signals sent by transmitters that may concern temperature, humidity, pressure, speed, capacity, level, force, etc. for the most varied industrial sectors, operating machines and automated systems.

CHARACTERISTICS.
- Set point configurable from -9999 to +9999.
- Indication provided by LED's with seven ½ inch segments.
- Separate clamp for voltage input 0-1V/0-10V and current input 0-20mA/4-20mA and Pt100 input (-200/+800°C).
- The instrument has an auxiliary power supply: -5Vdc max. 10mA and +15Vdc non stabilised max. 22mA for the possible supply of 2-wire transmitters.
- Instrument accuracy: ± 0,1% Rdg ±1 digit.
- A/D converter resolution: 0,1mV/digit, 2□A/digit.
- Functions:
  - One relay with independent exchange contact for output HI (SP1, SP2).
  - One relay with independent exchange contact for output LO (SP3, SP4).
  - One relay with maximum or minimum alarm closing contact (L max., L min).
  - Resistive relay contacts 3A/220V 50Hz.
- Working temperature: (electronic components) 5-50□C.
- Power supply: There is a terminal board for input 12-24Vac/Vdc or 110-240Vac/Vdc (the one or the other; both kinds of power supply).
- Instrument absorption: 5VA
- Minimum power of the supply transmitter 20VA

Function of the keys on the front panel, the display and the LED's

❶ During programming the following wording appears: FO, Fl, F2, F3, F4, F5, F6, F7, F8, SP1, SP2, SP3, SP4, SIO.
❷ Output Hi.
❸ Output LO.
❹ Alarm.
❺ Decimal point.
❻ A flashing dot indicates that the converter is working.



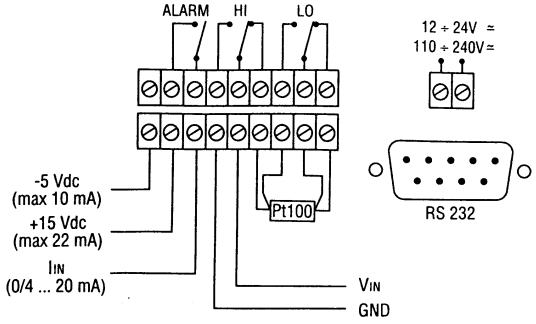
❼ **PROG** Every time this key is pressed the program moves one step forward (F0, Fl, F2, F3, F4, F5, F6, F7, F8, SP1, SP2, SP3, SP4, S10).

❽ **ENTER** When this key is pressed during programming, the instructions corresponding to the step of the program are displayed; the buttons σ and τ may be used to modify the instructions. When the key is pressed for the second time the stored instructions are confirmed.

❾ σ Pressing this key during programming increases the n value indicated on the display; in F2, it moves the
decimal point towards the right. In normal operation it flashes to indicate the value in Volts, mA or Ptl00 corresponding to the input; with a second impulse it returns to normal operation.

© τ Pressing this key during programming decreases the n value indicated on the display; in F2, it moves the decimal point towards the left. In normal operation it flashes to indicate the value in Volts, mA or temperature corresponding to the input; with a second impulse it returns to normal operation.

Connections:



Configuration of the HD 9022 panel controller

1) Supply power to the instrument.

2) The instrument performs an internal check, the wording **C.E.I.** appears for a few seconds followed by a number at random.

3) Press **PROG** and the message **F0** appears.

4) Press **PROG** and the message **FI** appears.

5) Press **ENTER** and the symbol **U**, **A** or **Pt** appears. Using the buttons, choose the input for voltage: **U**, current: **A** or Ptl00: **Pt** signals. Press **ENTER** to confirm.

6) Press **PROG** and the message **F2** appears; press **ENTER** ; with the σ τ keys, set the decimal point in the desired position.

   8888

   8.8

   8.88

   8.888

   Press **ENTER to** confirm.

7) Press **PROG** and the message **F3** appears; press **ENTER**, with the σ τ keys, set the voltage, current or Ptl00 value (as desired) corresponding to the beginning of the scale SI for example 0V, 4 mA or 0°C. Press **ENTER** to confirm.

8) Press **PROG** and the message **F4** appears; press **ENTER**, with the σ τkeys**,** set the numerical value corresponding to the beginning of the scale RI for example 0°C. Press **ENTER** to confirm.

9) Press **PROG** and the message **F5** appears; press **ENTER** , with the σ τ keys, set the voltage or current value (as selected in point 5) corresponding to the end of the scale S2 for example 10V, 20 mA or 200.0°C. Press **ENTER** to confirm.

10) Press **PROG** and the message **F6** appears; press **ENTER** , with the σ τ keys, set the numerical value corresponding to the end of the scale R2 for example 100°C. Press **ENTER** to confirm.

11) Press **PROG** and the message **F7** appears; press **ENTER**, with the σ τ keys, set the maximum alarm threshold value L max. for the Alarm relay for example 110°C. Press **ENTER** to confirm.

12) Press **PROG** and the message **F8** appears; press **ENTER**, with the σ τ keys, set the minimum alarm threshold value L min for the Alarm relay for example -10°C. Press **ENTER** to confirm.

13) Press **PROG** and the message **SP1** appears; press **ENTER**, with the σ τkeys, set the Set value for the first threshold "SET relay HI" for example 40°C/40%. Press **ENTER** to confirm.

14) Press **PROG** and the message **SP2** appears; press **ENTER**, with the σ τ keys, set the Reset value for the first threshold "RESET relay HI" for example 45°C/45%. Press **ENTER** to confirm.

15) Press **PROG** and the message **SP3** appears; press with the σ τ keys, set the Set value for the second threshold "SET relay LO" for example 50°C/50%. Press **ENTER** to confirm.

16) Press **PROG** and the message **SP4** appears; press **ENTER** with the σ τ keys, set the reset value for the second relay "RESET relay LO" for example 48°C/48%. Press **ENTER** to confirm.

17) Press **PROG** and the message **S10** appears. Press **ENTER.** With the σ τ keys, set the desired speed of RS232 serial transmission among the following ones: 300, 600, 1200, 2400, 4800, 9600 baud. Press **ENTER** to confirm.

18) Press **PROG** and the message **F0** appears. AT THIS POINT THE CONFIGURATION OF THE INSTRUMENT IS COMPLETE.

19) Connect the input of the instrument, press the **ENTER** key and the display will indicate the value corresponding to the input signal.

Varying the configuration

To vary a stored parameter at any stage of the program it is sufficient to the step of the program to be changed with the **PROG** key (F1, F2, F3, etc.). Press **ENTER** and use the σ τkeys to modify the parameter previously set; press **ENTER** to confirm, return to F0 and press **ENTER** . This simple procedure modifies the desired step of the program.

Note

If the σ τkey is pressed independently during operation, the instrument input value (V, mA or °C) flashes on the display. To return to normal operation, press the σ τkey independently again.

Error signal

The instrument indicates an error signal in the following cases:
0FL: this appears when the set value of **R max** is exceeded.
0FL: this appears when the set value of **R min** is exceeded.
EI: this appears when the set points Pl and P2 require a resolution of the AID converter higher than the one available.
E2: this appears when the values of F7 and F8 are inverted.
THE MAXIMUM RESOLUTION OF THE CONVERTER IS: 0.1 mWDigit, 2pAlDigit.

Example of a connection with 2-wire transmitters; the instrument feeds the transmitter.

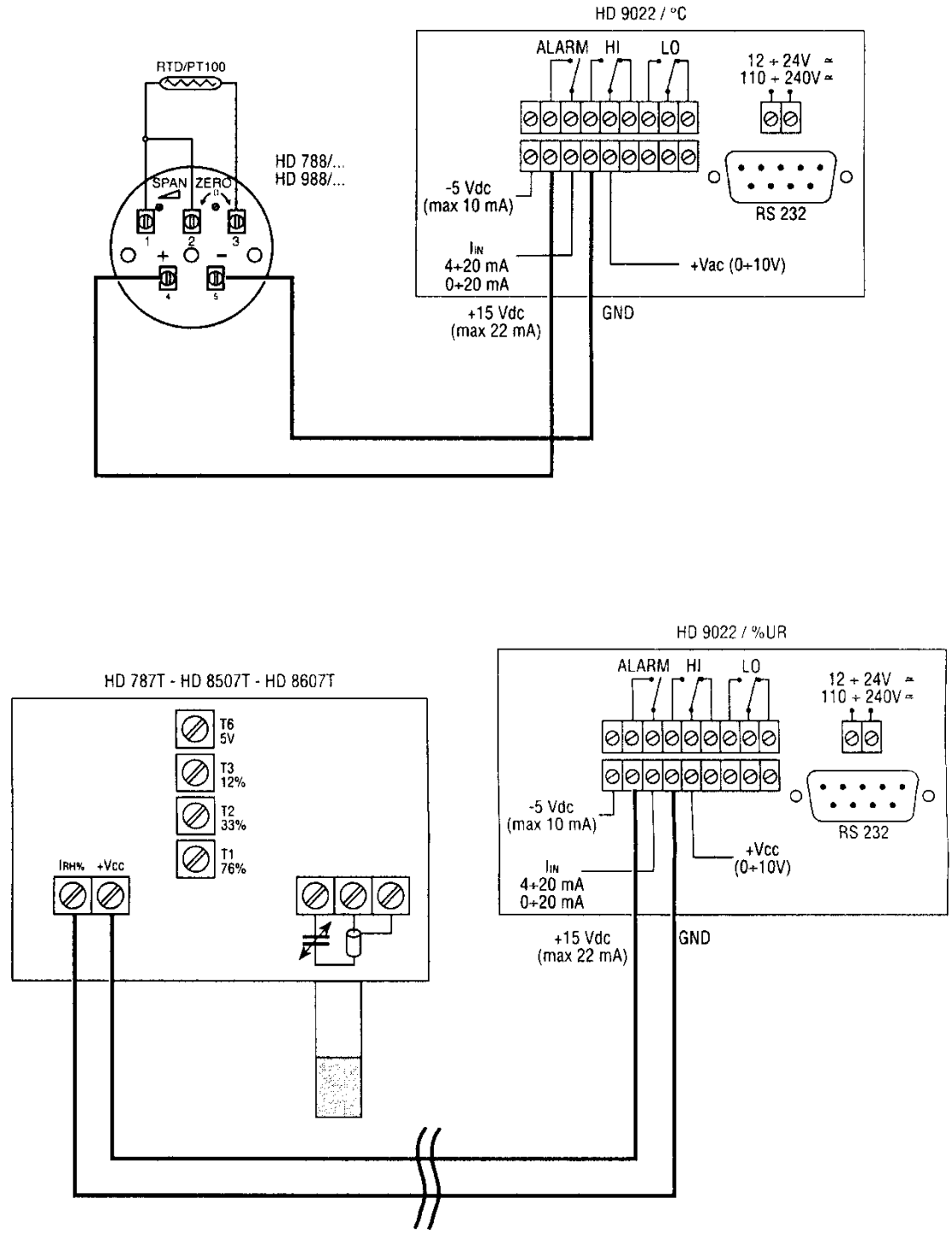


Fig. 1

Example of a connection with 2-wire transmitters; the instrument has a separate power supply.

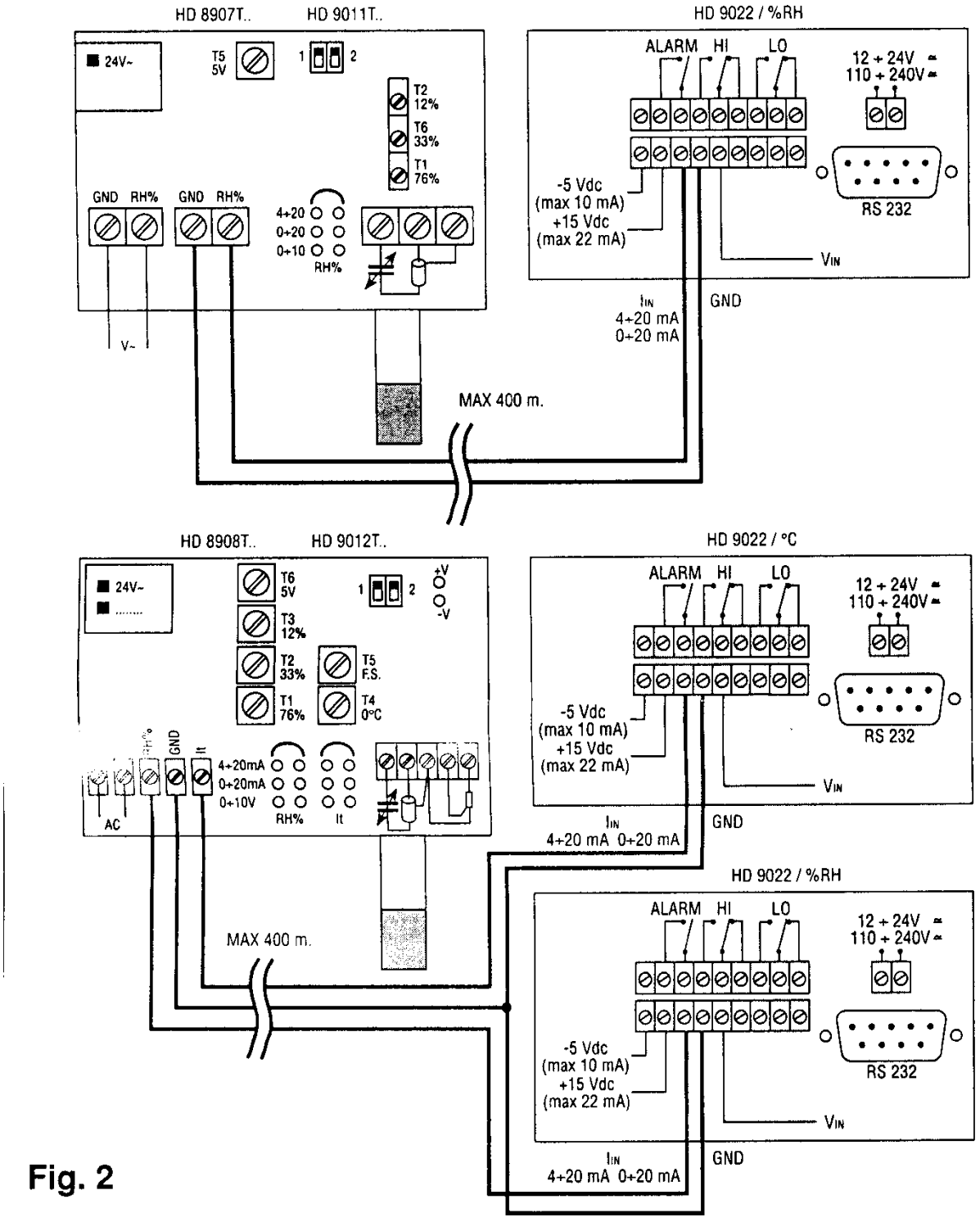


Fig. 2

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