



HM01.D

HART modem-converter to RS232

HART modem is intended for signal conversion from serial line RS232 to communication protocol HART according to Bell 202 standard. It works in half-duplex mode, the data transfer direction is switched automatically. The modem allows easy connection between arbitrary device with RS232 serial line (e.g. PC, PLC, microcontroller) and devices equipped with circuits for HART protocol communication. The principle of HART communication lies in modulation of digital data signal on current output signal 4-20 mA of device.

Aside of service and diagnostic data, additional digital information about magnitude corresponding to output current of the sensor, and about other measured

magnitudes can be transferred through the connection line. Thus one sensor can measure and transmit several physical magnitudes. Easy access to service and diagnostic information allows monitoring of current state and easy change of sensor settings via utility software installed on PC. The physical magnitude measuring and monitoring through current output of sensor stays unaffected.

The design of HM01.D allows easy montage on a DIN rail. At the same time it assures voltaic separation of measuring circuit from connected device.

HM01.D is intended for permanent fitting in measuring circuit or PLC controller.

Inputs and outputs

- **Tx**: data received by PC or PLC controller, voltage levels corresponding to RS232 standard, output signal of HM01.D
- **Rx**: data transmitted by PC or PLC controller, voltage levels corresponding to RS232 standard, input signal of HM01.D. Function of automatic data transfer direction switching is derived from this signal - if there are no data transmitted from PC, the modem receives data from HART network and converts it to RS232. When PC starts transmission, the modem switches the direction automatically and converts data from RS232 to HART output.
- **GND**: signal ground, connects ground of PC to ground of HM01.D modem and insulates it from HART outputs. Insulation voltage between input and output side of modem is 500V.
- **0V**: negative terminal of external 24Vdc power supply
- **+24V**: positive terminal of external 24Vdc power supply
- **H1, H2**: input/output terminals of HM01.D modem. They are symmetrical at HART side and their polarity does not matter

Basic parameters

- communication speed 1200 bps (according to Bell 202), logic level L corresponds to frequency 1200 Hz, level H to frequency 2200 Hz
- modem is powered by external 24Vdc power supply, maximum consumption is approximately 20mA
- insulation voltage between input and output side of modem is 500V
- output voltage with frequency 1200/2200 Hz is approx. 500 mV on working resistance 250 ohm; its mean value is neutral and does not affect measuring accuracy of sensor output current
- HM01.D is embedded inside DIN rail montage plastic box of 2 standard module width, input and output signals and power supply are connected through screw terminals
- size: 90×36×58 mm
- weight: 60 g

Typical connection of HM01.D modem in measuring circuit

