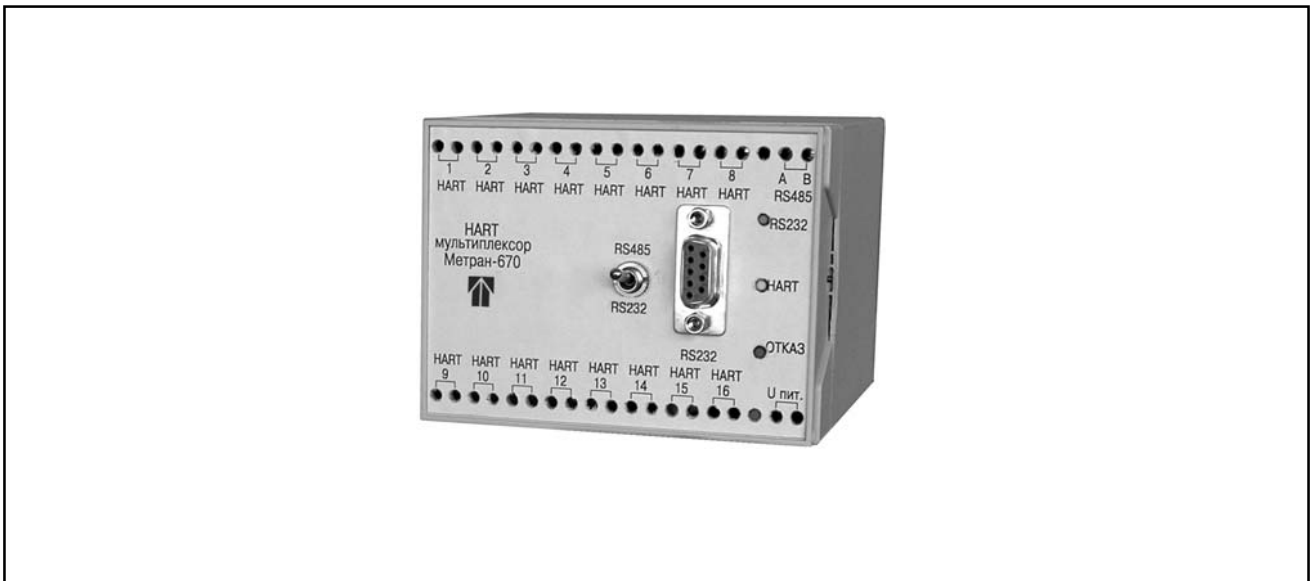


## Metran-670 HART Multiplexer



- **8- or 16-channel HART Multiplexer with RS485/RS232 control interface**
- **Possibility to connect up to 15 devices to each HART-input channel**
- **RS485 and RS232 ports are galvanically isolated from HART lines**
- **Intrinsically safe version:**
  - **Explosion protection type: “intrinsically safe electrical circuit”,**
  - **Explosion protection marking: [Exia] IIC**
- **Used with MUX-Master software or HART ORS-server system**
- **HART Multiplexer is not a measuring device**

Metran-670 HART Multiplexer (further Multiplexer) is designed for connection of PC or process control systems to Metran-100, 3051 Smart Pressure Transmitters, Metran-280 Smart Temperature Transmitters and other HART devices.

The Multiplexer provides transformation of HART data signal into RS485 or RS232 interface digital signal, and analog 4-20 mA signal of current loop can be used by registration and control system.

The following options of Multiplexer application are available:

- MUX-Master software (developed by Metran IG) for operation from dedicated PC;
- HART ORS server for integration into SCADA systems.

### BASIC SPECIFICATIONS AND PARAMETERS

- Number of HART channels: 8, 16. Load capacity of each channel: 15 transmitters in multipoint mode
- Communication with control system: by HART-protocol at RS485 or RS232 physical layer. Available number of multiplexers connected into one RS485 line: up to 31
- Sine-wave HART signal amplitude, frequency: 1200 or 2200 Hz -  $(0.3 \pm 0.1)$  V
- Multiplexer input impedance (HART input), min: 1100 Ohm
- Multiplexer output impedance (HART output), max: 700 Ohm
- Multiplexer detects HART signal at amplitude over 120 mV and does not respond to HART-signal at amplitude less than 80 mV
- Multiplexer inputs do not load 4-20 mA dc line
- RS485 and RS232 outputs are galvanically isolated from HART lines, withstand ac test voltage of 1500 V minimum
- Supply: dc power supply, voltage of 9-18 V, current consumption, max: 50 mA
- Metran-670 HART Multiplexer is made in a plastic housing, may be mounted on DIN rail
- Multiplexer overall dimensions: 100x75x120 mm
- Multiplexer weight, max: 0.4 kg

### MULTIPLEXER CONNECTION

The Multiplexer is connected to PC with the help of DB9-DB9 cable (RS232 interface), or via RS485 interface by two-wire line, using RS232/RS485 interface converter. The Multiplexer is connected to transmitter line (HART device) with the help of wires and appropriate connector.

### EXTERNAL WIRING DIAGRAMS

Abbreviations:

**PS** - dc Power Supply;

**PS-Ex** - Power Supply of Explosion-proof Version;

**PC** - Personal Computer;

**COM** - Serial Port;

**HART-MUX** - Metran-670 Multiplexer;

**RI** - Total Resistance of all loads in a control system (recording/indicating device, etc.), min: 250 Ohm.

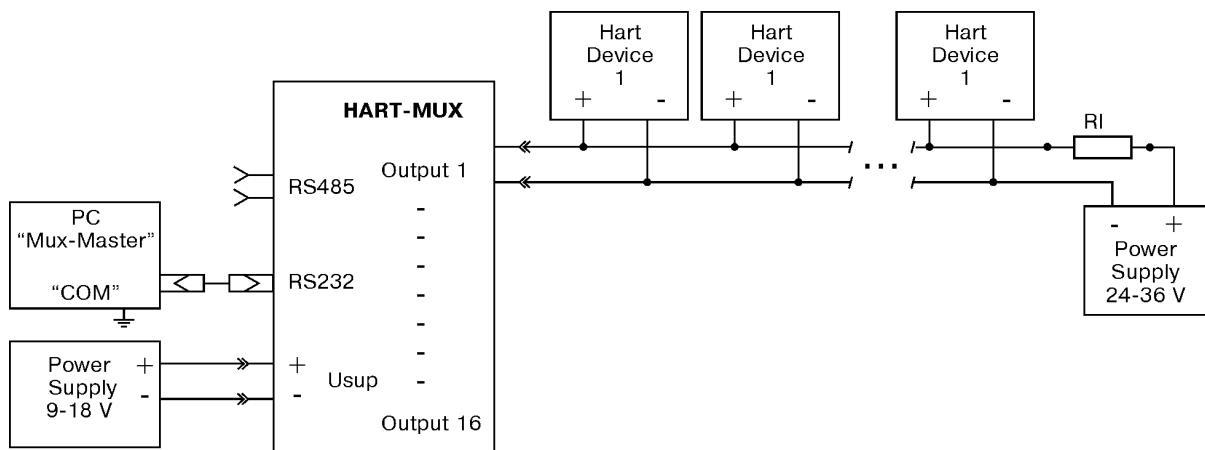
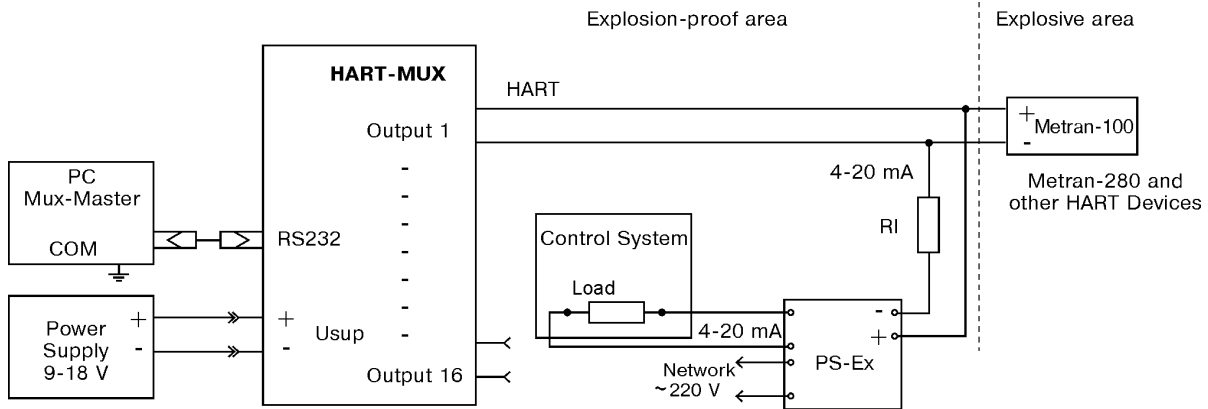
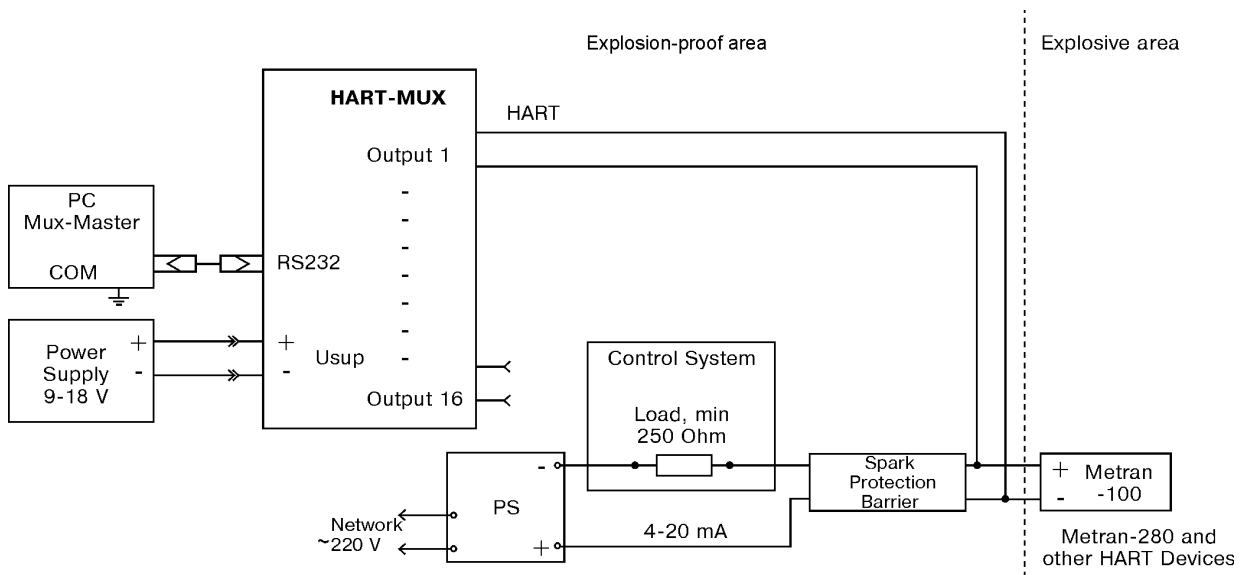


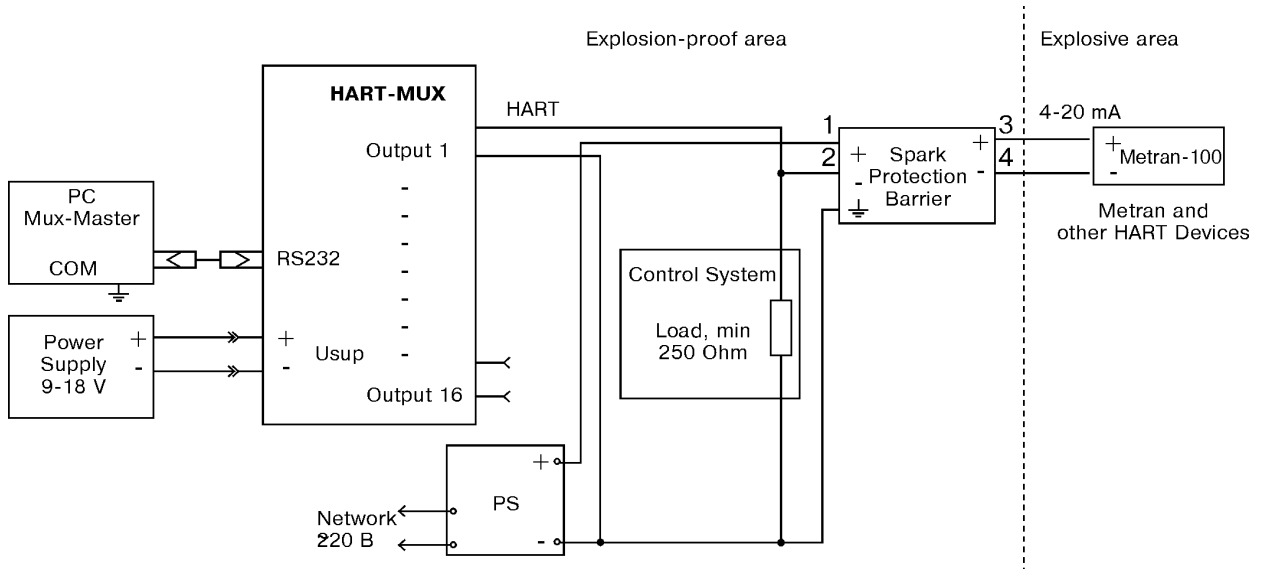
Fig.1. Multiplexer Wiring Diagram at Operation via RS232 Interface.



**Fig.2. Multiplexer Wiring Diagram to Intrinsically Safe Circuit Using Power Unit with Intrinsically Safe Input.**



**Fig.3. Multiplexer Wiring Diagram to Intrinsically Safe Circuit Using Spark Protection Barrier not Passing HART Signal.**



**Fig.4. Multiplexer Wiring Diagram to Intrinsically Safe Circuit Using Spark Protection Barrier Passing HART Signal.**

**OPERATION CONDITIONS**

- Climatic effects stability: UHL version 3.1 per GOST 15150, for operation at 0 to 50°C of ambient temperature and 80% of ambient humidity at 35°C.
- Mechanical effects stability: vibration-proof version V1 per GOST 12997.
- Dust and water tightness: IP30 per GOST 14254.
- The Multiplexer keeps operable state, provides faultless data exchange between PC and a transmitter under magnetic field of alternating current with frequency of 50 Hz and intensity up to 400 A/m.

**RELIABILITY**

Average service life: 12 years  
 Mean time between failures, min: 50000 h.

**WARRANTY**

Warranty period: 18 months from the date of commissioning.

**DELIVERY SET**

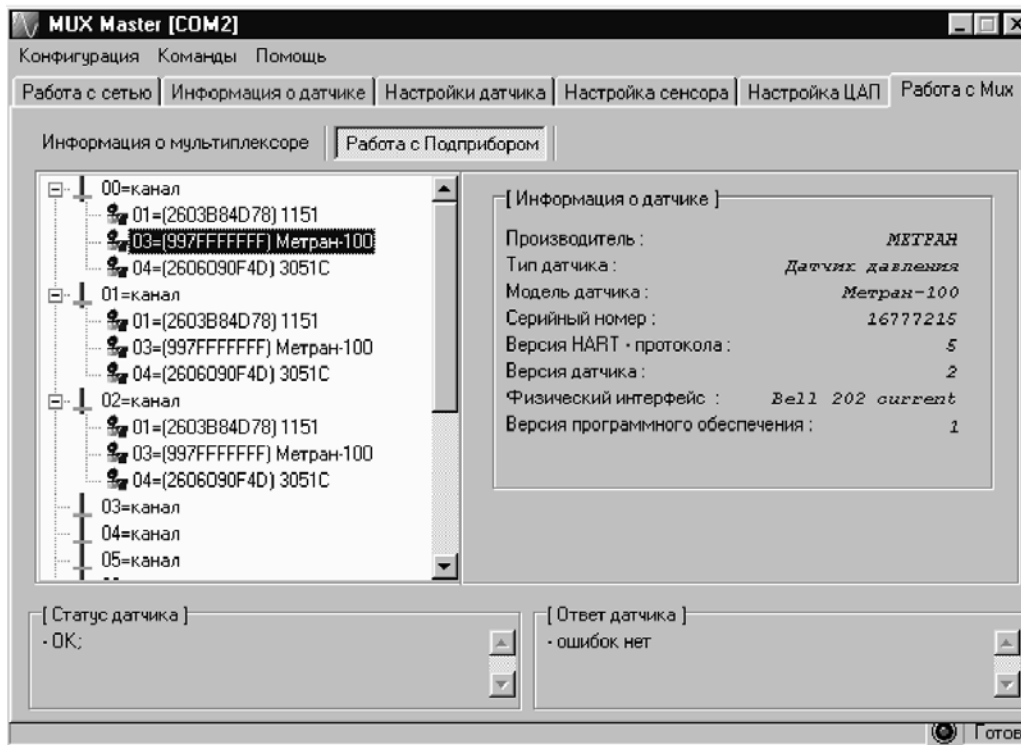
- |  |        |
|--|--------|
| 1. Metran-670 HART Multiplexer   | 1 unit |
| 2. Product Data Sheet 5199.000.00 PS                                   | 1 copy |
| 3. Cable DB9-DB9   | 1 unit |
| 4. MUX-Master software or HART ORS-server (refer to relevant sections) | 1 unit |

**ORDERING INFORMATION**

<b>Metran-670 - 16 - Ex - MUX-Master - TU 4219-045-12580824-2003</b>				
1	2	3	4	5

1. Multiplexer type.
2. Number of HART-input channels (8, 16).
3. For explosion-proof version only.
4. MUX-Master software or HART ORS-server.
5. Specification.

## MUX-Master Software



**MUX-Master configuration program** is designed for operation with Metran-670 HART Multiplexer and is used for setup of Metran-100 Smart Pressure Transmitters, Metran-280 Smart Temperature Transmitters and other HART devices.

MUX-Master program performs the following operations:

- search of devices, connected via RS-485 interface and supporting HART data link layer;
- search of devices, connected to multiplexer HART inputs;
- readout of process variables from the devices, connected to multiplexer HART input;
- readout of information about HART device and sensor, connected to multiplexer HART input;
- test of the device connected to multiplexer HART input;
- setup of the device, connected to multiplexer HART input;
- setup of device sensor, connected to multiplexer HART input;
- setup of DAC of the device, connected to multiplexer HART input.

Minimum hardware requirements:

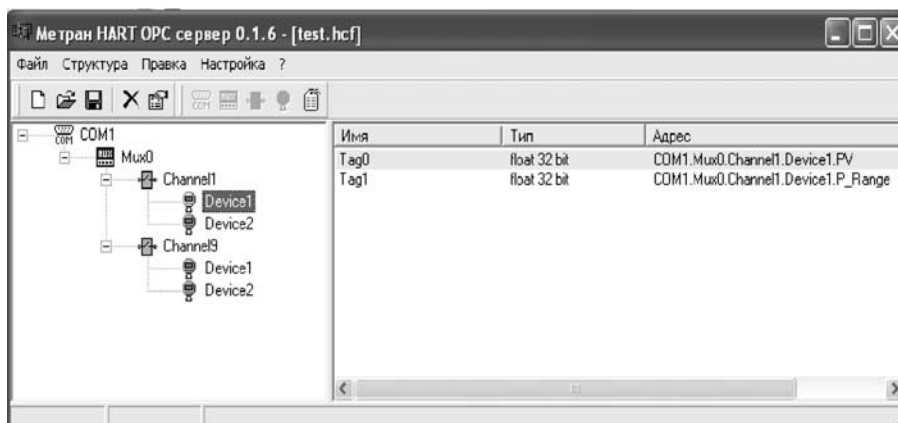
- Pentium processor, 16 MB RAM;
- VGA 640x480 video display adapter, 16 colors;
- Free asynchronous communication port (COM-port);
- 2 MB free space on HD.

Software: OS Microsoft Windows 9x/ Windows NT.

MUX-Master operates with arbitrary HART device within HART protocol standard commands.

Detailed description of MUX-Master software is given in the Operation Manual. The program is supplied on CD.

## HART OPC-Server



**HART OPC-server** is designed to access SCADA systems and any OPC-Clients to the data of field HART devices via HART Modem or Metran-670 HART Multiplexer.

HART OPC-server gives access to the following data of field devices:

- Process variables;
- Current;
- Upper and lower range limits;
- Damping time;
- Measurement units of process variables;
- Sensor URL and LRL;
- Message.

HART OPC-server has the following characteristics:

- Support of HART network configuration with connection of devices to HART Modem or HART Multiplexer;

- Up to 1000 devices support;
- Automatic downloading of the latest configurations;
- Transmission of data reliability status to OPC-Clients.

Minimum hardware requirements:

- Pentium-II processor (366 MHz), 64 MB RAM;
- Free asynchronous communication port (COM-port);
- 16 MB free space on HD.

Software: OS Microsoft Windows NT, Windows 2000, Windows XP.

HART OPC-server corresponds to DA 2.0 ORS Foundation specification.

Detailed description of HART OPC-server operation is given in the Operation manual. The program is supplied on CD.