# READING PROCESS DATA USING HART MODULE

- ### Basic information

The HART module can be installed in the DL2 data logger or in the DL7 data logger. Passive transducers (powered by device or by an external power supply) and active transducers can be connected to the module. Transducers can operate in a multidrop mode. A block diagram of the module is presented below. The built-in R250 Ω internal resistor is in the OFF position by default (settings can be changed in the data logger I/O settings menu).

Note: Internal R250 Ω resistor is automatically disconnected during a power outage.
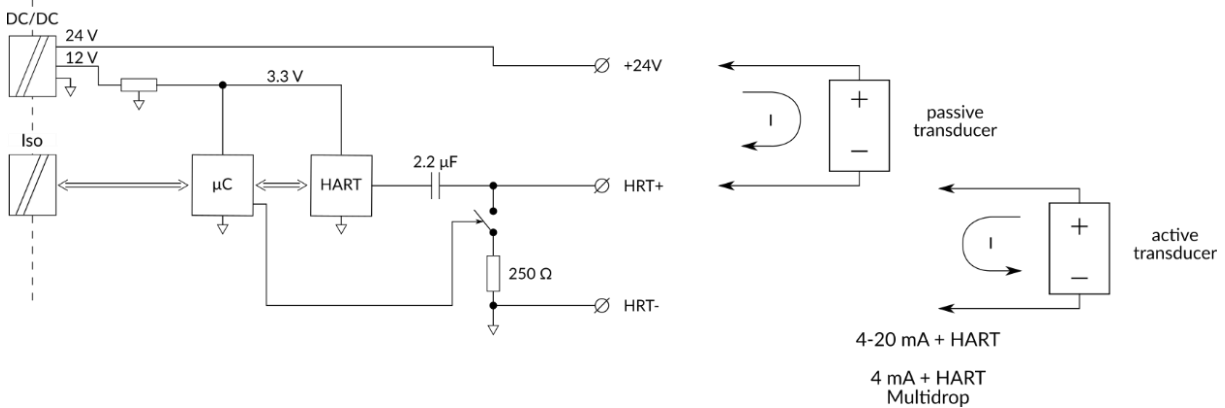
- ### Parallel connection between terminal blocks

The module has 4-position plug-in terminal for signal connection. The terminal blocks are internally connected in parallel.
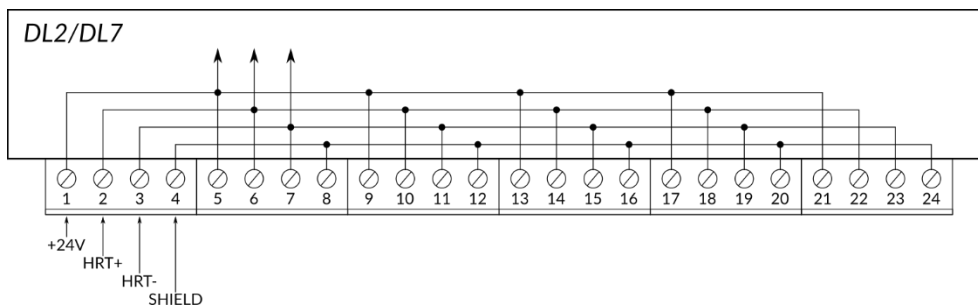
- ### Wiring diagrams

Connection of the passive transducer supplied from the module

Connection of the passive transducer with external loop supply or connection of the active transducer

Multidrop application, passive transducers supplied from the module

Multidrop application, passive transducers with external loop supply or active transducers

Connection of the device in the Secondary Master mode, passive transducers supplied from the module

Connection of the device in the Secondary Master mode, passive transducers with external loop supply or active transducers

**Connection of the cable shield**

Incorrect connection

- **Connection of the passive transducer supplied from the module**

A typical application involves connecting one transducer. The connection of one passive transducer with loop supply from the module is presented below. The R250 Ω internal resistor must be set to ON.
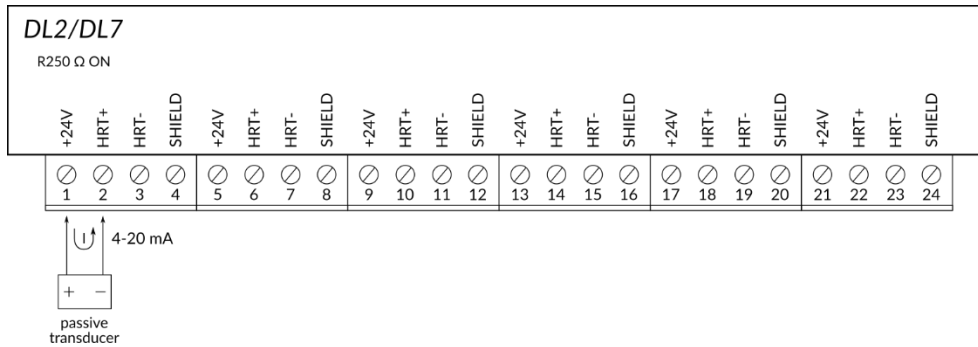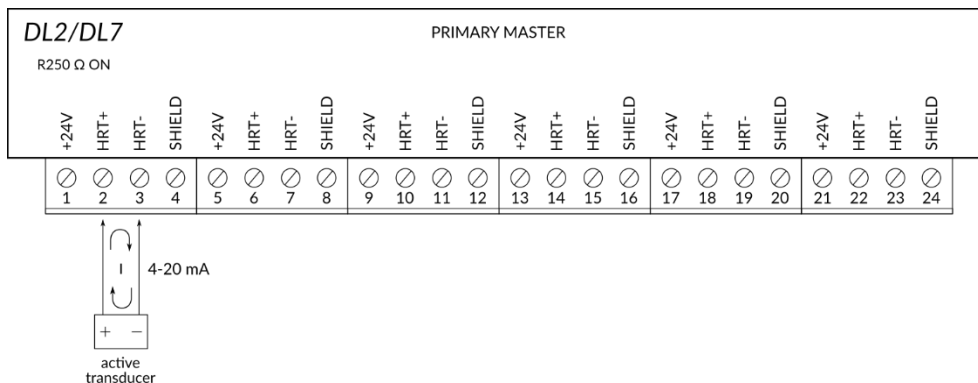

- **Connection of the passive transducer with external loop supply or connection of the active transducer**

Connection of one passive transducer with external loop supply is presented below. The R250 Ω internal resistor must be set to ON.
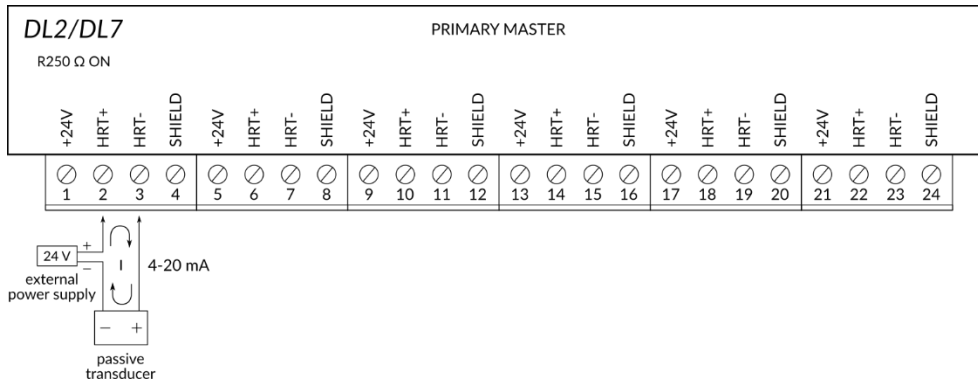
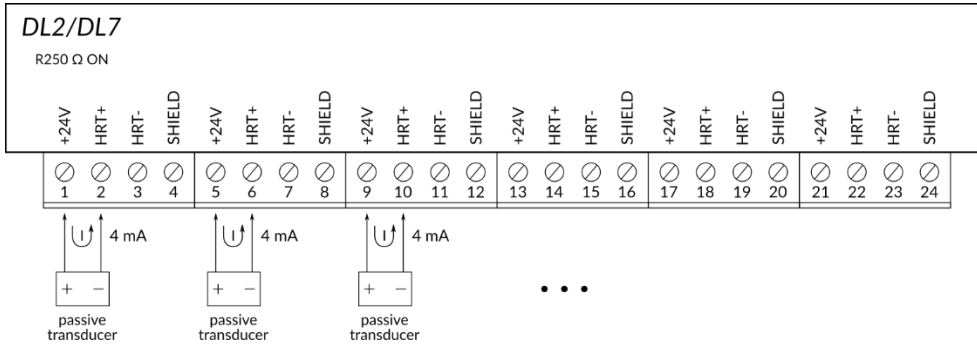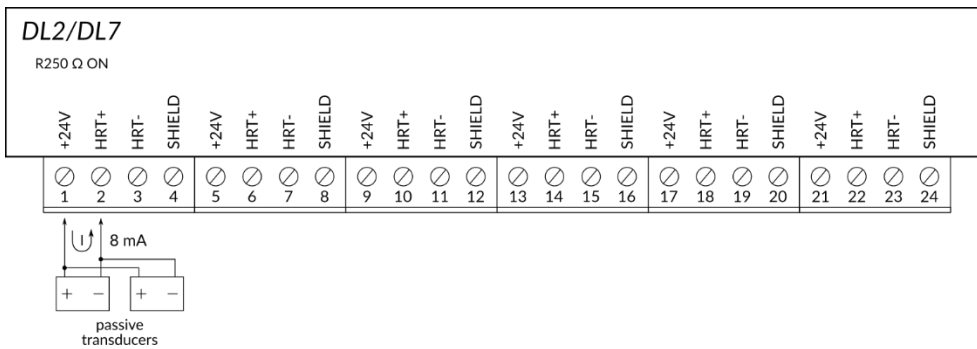Connection of one active transducer is presented below. The R250 Ω internal resistor must be set to ON.

- ### Multidrop application, passive transducers supplied from the module
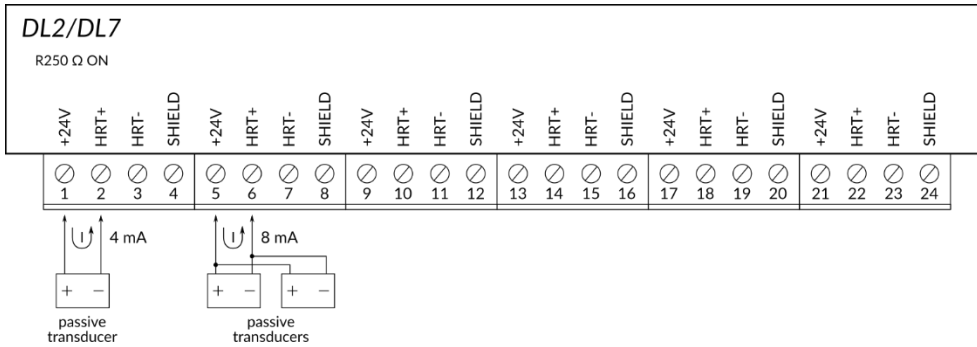
A multidrop application implemented using module terminals is presented below. The R250 Ω internal resistor must be set to ON.

A multidrop application implemented using a parallel connection on the line is presented below. The R250 Ω internal resistor must be set to ON.


A multidrop application implemented using module terminals and parallel connection on the line is presented below. The R250 Ω internal resistor must be set to ON.

- ### Multidrop application, passive transducers with external loop supply or active transducers

A multidrop application implemented using a parallel connection on the line is presented below. Transducers with external loop supply or active transducers can be connected. The R250 Ω internal resistor must be set to ON.
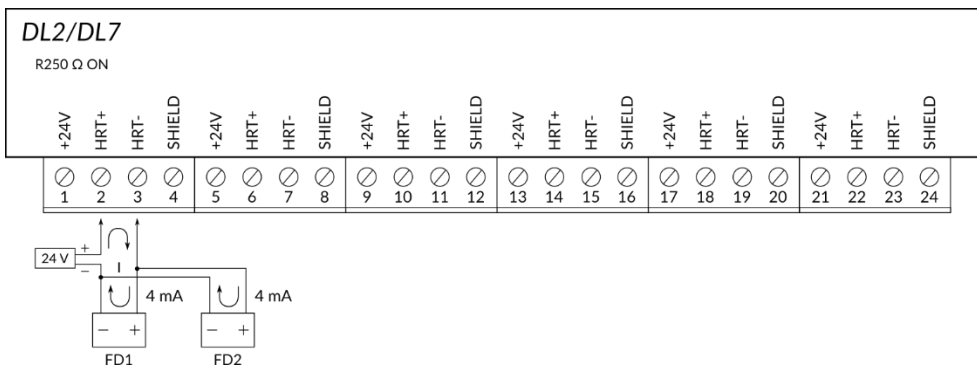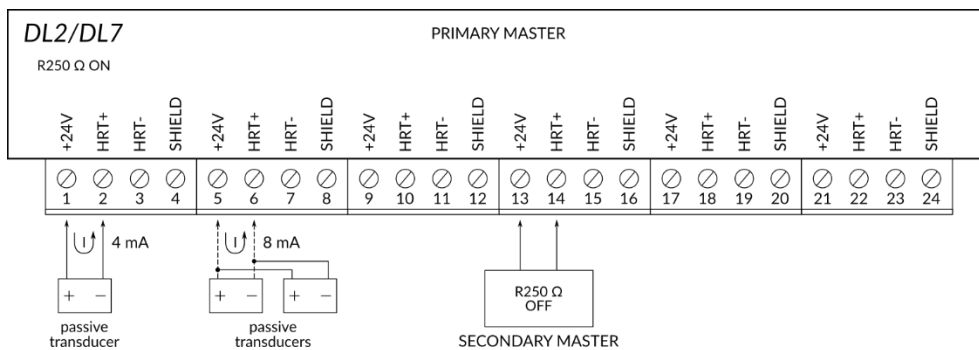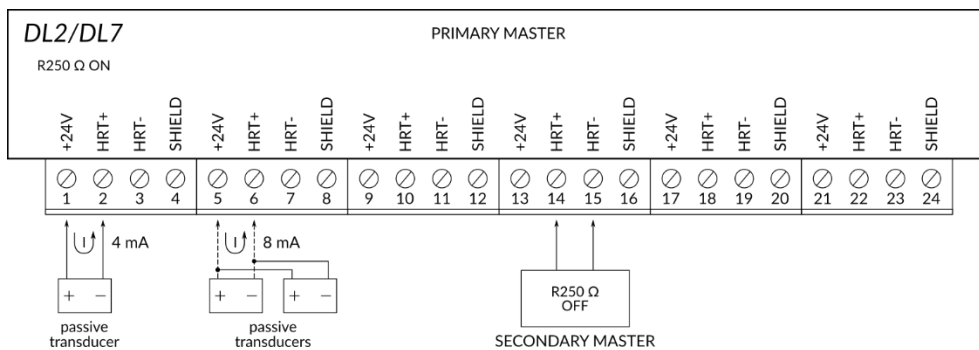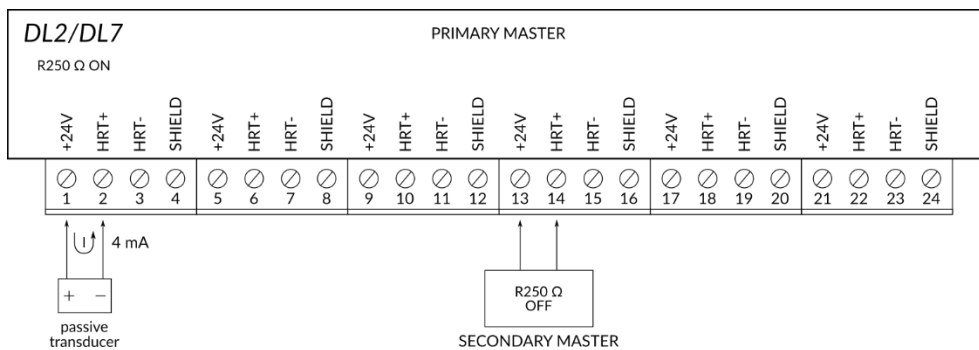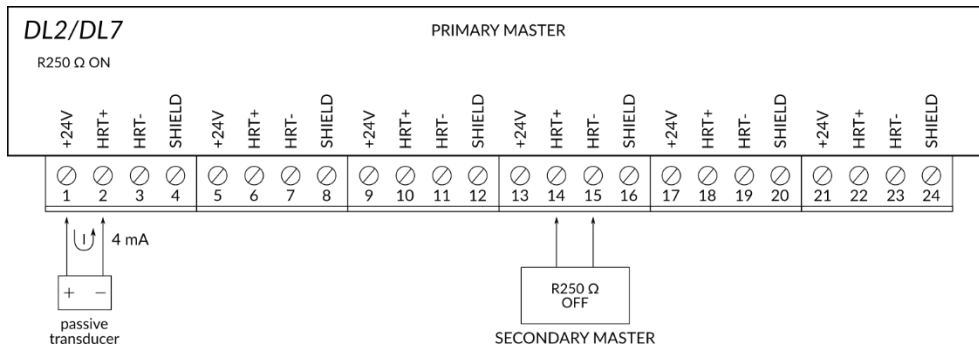
- **Connection of the device in the *Secondary Master* mode, passive transducers supplied from the module**

The *Secondary Master* device can be e.g. a service communicator or other DL2/DL7 data logger with HART module installed. In this application, for the device in *Primary Master* mode, the R250 Ω internal resistor must be set to ON, for the device in *Secondary Master* mode, the R250 Ω internal resistor must be set to OFF.

An applications containing passive transducers supplied from the module (also optional multidrop application) and the device in the *Secondary Master* mode are presented below. The device in *Secondary Master* mode should be connected to HRT+ and HRT- terminals of the module or to +24V and HRT+ terminals of the module.
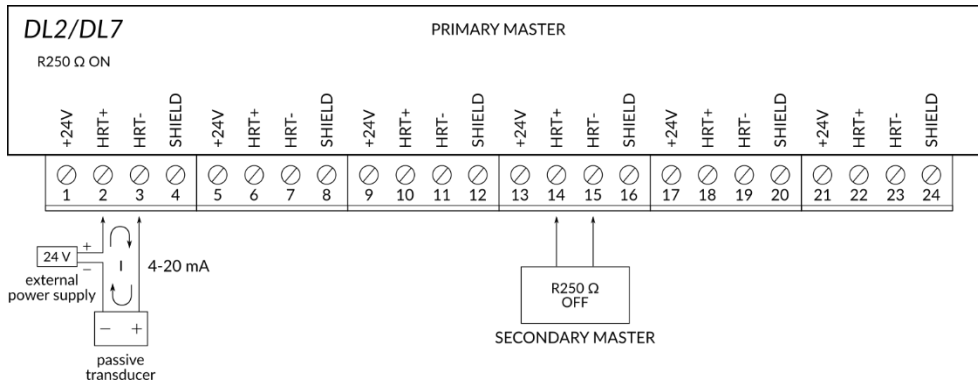
Note: Internal R250 Ω resistor is automatically disconnected during a power outage.

- **Connection of the device in the *Secondary Master* mode, passive transducers with external loop supply or active transducers**

The connection of one passive transducer with external loop supply and device in the *Secondary Master* mode is shown below. The device in the *Secondary Master* mode should be connected to HRT+ and HRT- terminals of the module. In this application, for the device in *Primary Master* mode, the R250 Ω internal resistor must be set to ON, for the device in *Secondary Master* mode, the R250 Ω internal resistor must be set to OFF.

Note: Internal R250 Ω resistor is automatically disconnected during a power outage.
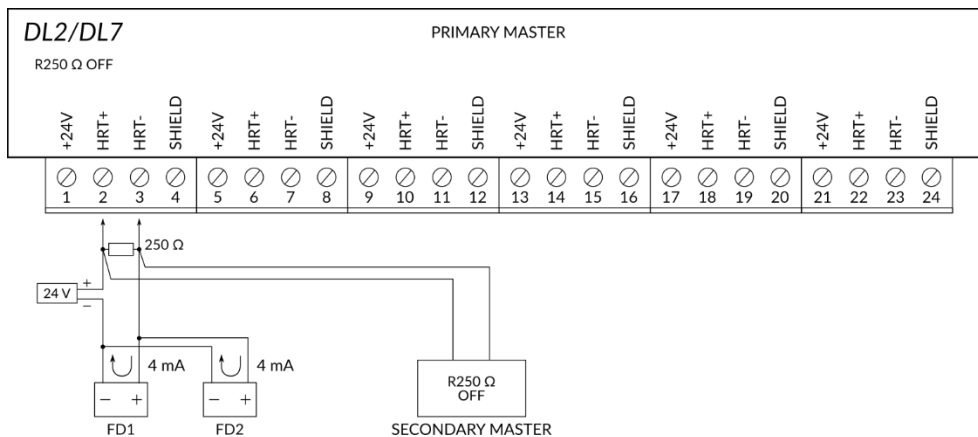

The connection of one active transducer and device in the *Secondary Master* mode is shown below. The device in the *Secondary Master* mode should be connected to HRT+ and HRT- terminals of the module. In this application, for the device in *Primary Master* mode, the R250 Ω internal resistor must be set to ON, for the device in *Secondary Master* mode, the R250 Ω internal resistor must be set to OFF.

**Note:** Internal R250 Ω resistor is automatically disconnected during a power outage.
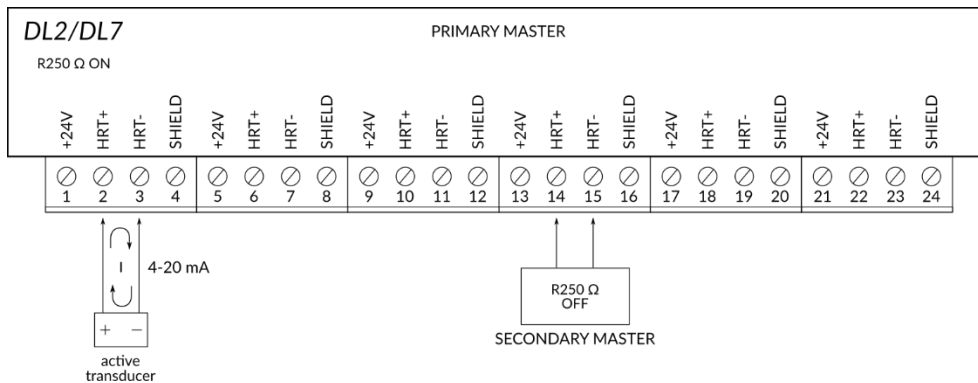
If it is necessary to maintain the loop current in the event of a power outage, an external resistor R250 Ω should be used. The multidrop application and the device in *Secondary Master* mode is presented below. In the presented application for the device in the *Primary Master* mode and for the device in the *Secondary Master* mode the R250 Ω internal resistor must be set to OFF.

- **Connection of the cable shield**

It is possible to connect the cable shield to the module terminal blocks. If the device is mounted in a metal cabinet, it is recommended to connect the screen directly to the cabinet, by passing the module connector.

The screen must be connected to GND at both ends of the cable. If there is a risk of equalizing current flowing through the screen, the screen should be grounded on one side only (at the device).
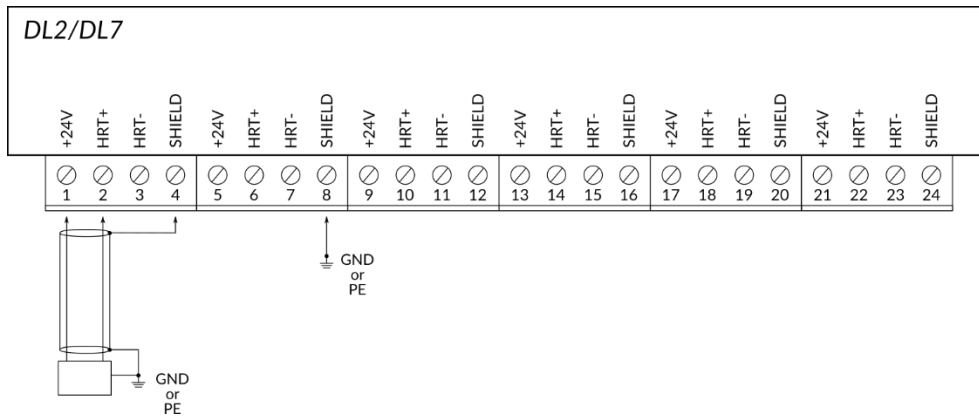

- **Incorrect connection**

Connection of the device in the *Secondary Master* mode to +24V and HRT+ terminals in the application with an active transducer/passive transducer with an external power supply.
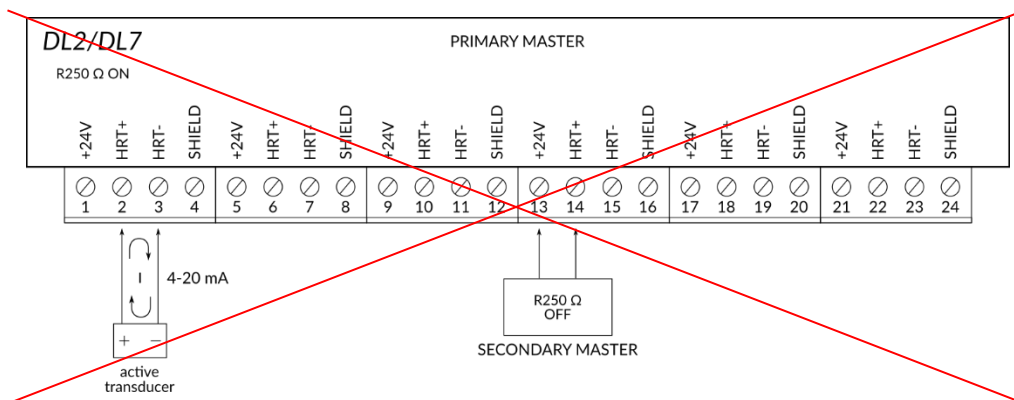
Multidrop application and the device in the *Secondary Master* mode (the system includes internal R250 Ω resistor set to ON in the HART module and an external R250 Ω resistor).
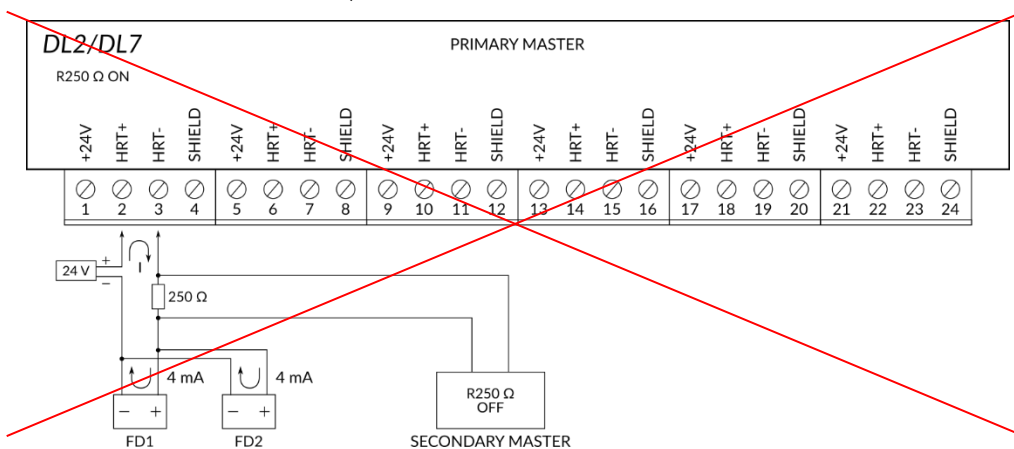
Multidrop application and the device in the *Secondary Master* mode (the system includes internal R250 Ω resistor set to ON in the HART module and an internal R250 Ω resistor provided by the *Secondary Master* device).
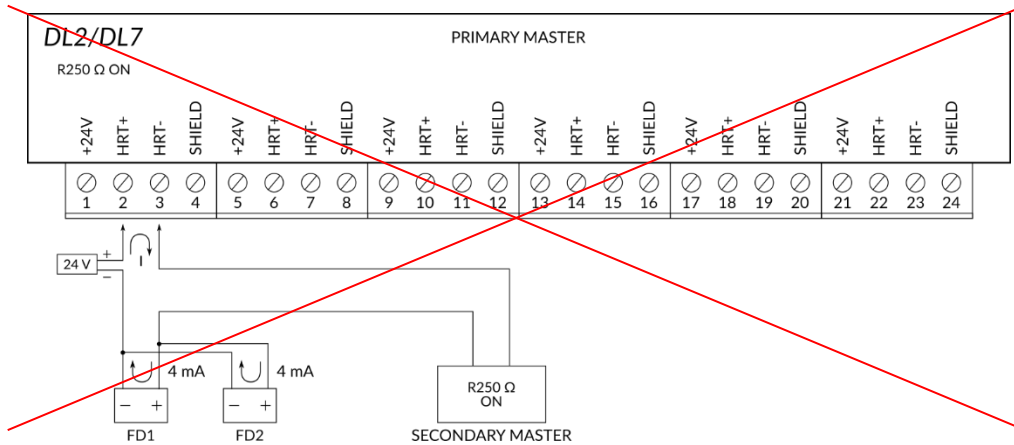
- **Information from the Manufacturer**

All functions of the recorder are subject to modifications for the benefit of technical progress.

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