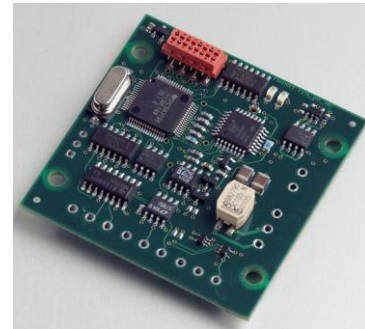


## Modbus® to HART® built-in module, the T210



### Summary:

- ◆ Provides HART ability to Modbus RTU transmitters
- ◆ HART slave OEM module for built-in applications
- ◆ Ready for instrument integration, simple configuration
- ◆ Easily adaptive to your application
- ◆ Communication options are RS485, RS232 or CMOS.
- ◆ Connects to the loop as a handheld communicator
- ◆ T210 supports Universal and a few Common Practice commands.
- ◆ T210 is compliant with the HART 5 standard.
- ◆ T210 supports HART burst mode and multidrop communication
- ◆ Small dimensions, 50 mm by 50 mm
  - ◆ Flash programmable



### General description

The **T210** is an **OEM board** designed for integration in 4-20 mA instruments with a Modbus RTU transmitter. It allows upgrade of 4-20mA instruments to HART. It supports RS 232, RS 485 or a CMOS UART for instrument interfacing.

The **T210** communicates on a serial line supporting the Modbus protocol. It can read up to four dynamic variables from the instrument. Modbus address, register address and the data type of the variables can be configured. By means of selecting Engineering Unit class, a wide variety of instrument types can be supported. Adapting to an instrument is a simple configuration task using PC software supplied by Fint.

The **T210** does not control the loop-current. It connects to the existing 4-20mA loop.

The **T210** supports all HART Universal Commands and a few Common Practice commands. If you need Device Specific Commands or more Common Practice Commands or you require calibration and parameter set-up capabilities, you should use the T210\_C and let Fint's support team customize the module to your particular needs. This is very often a minor engineering task

### T210 application:

Typical examples are Modbus instruments that shall be upgraded to communicate in HART systems.

- ◆ Gas detectors and analyzers
- ◆ Positioners and actuators

- ◆ Any smart instrument

### T210 specifications:

- |                                |                      |
|--------------------------------|----------------------|
| ◆ Mechanical size              | 50 mm x 50 mm        |
| ◆ Mounting                     | four 3 mm screws     |
| ◆ Operating temp range         | -40 °C to + 85 °C    |
| ◆ Input supply voltage range   | 6-30 Vdc             |
| ◆ Line over voltage protection | 50V                  |
| ◆ Nom supply current           | 20 mA(RS232 9.6kb/s) |
| ◆ Nom supply current           | 16 mA(RS48 9.6 kb/s) |

### HART Commands included:

- ◆ All Universal Commands
  - ◆ Read variables
  - ◆ Read and write TAG name
  - ◆ Read range values and sensor limits
  - ◆ Read and write user messages and date
- ◆ Common Practice commands required for
  - ◆ Selection of engineering units
  - ◆ Burst mode control

For factory set-up Device Specific Commands are included. To operate on these commands you need the HART Master program, SW01, supplied by Fint. There are commands for setting addresses, serial numbers and sensor limits.

### Address:

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<http://www.fint.no>

## Common Practice Commands supported in the T210:

Command function	Command No.	Comments
Write PV units	44	Selection depending on instrument type
Write burst mode command no	108	Selects command to used during bursting Com 1,2 and 3
Burst mode control	109	Start and stop burst mode
<b>All Universal Commands</b>		

## Modbus Support in the T210:

The T210 supports the following Modbus Function Codes:

- Function number 3: Read Holding Register
- Function number 4: Read Input Register (for dynamic variables only)
- Function number 16: Preset Multiple Registers

Modbus communication parameters:

- Baud rates: 2400/4800/9600

## Current loop connection

