



TDS14061

HVAC Modbus Master interface

TDS14061 is an AUTOBUS to Modbus interface for interfacing with BMS (building management systems) and custom HVAC systems. The interface provides the necessary data to control and visualize room temperatures in up to 64 heat/cool zones. The TDS14061 interface is equipped with a manual override button and an external override input which can be used in case of an emergency/evacuation.

APPLICATION

The interface provides and receives the information for the TELETASK room temperature control panels (e.g. AURUS-OLED display panel). The externally connected BMS takes care of all cool/heat control.

CHARACTERISTICS

Functionalities available in the interface Modbus address map

The temperature measurement has to be done by the BMS. The displayed room temperature and all data comes from the BMS system.

The user can influence some of the parameters:

- Temperature setting (what the user wants the room temperature to become)
- Zone ON/OFF
- Fan speed (low/med/high/auto)
- Temperature presets (day, eco and night)
- Cool/heat/fan/dry mode

The system works with the information from the airco temperature sensors (no touch panel sensors, TDS12250xx or TDS12251 temperature sensors are used in this setup).

Outputs

Modbus: non configurable address map. See below.

Override

Manual override button:

This button switches between three HVAC operations (for testing purposes only).

- LED BLINK: All zones off
- LED ON: All zones on
- LED OFF: Back to normal operation (original state)

! Remark: As soon as an AUTOBUS command is received the manual override will be cancelled (LED OFF: normal operation).

The external override input switches all HVAC units 'OFF' regardless of any AUTOBUS commands and the manual override for as long as the external override input contact is closed.

HVAC system error codes are shown in PROSOFT diagnostics.

SETTINGS

Configuration

Via PROSOFT Suite 3.3.0.38 or higher.

AUTOBUS address

Via two rotary switches "Tens" & "units". Occupies only one address.

Jumpers

Terminating resistor (supplied with the interface). To be used when the interface is at the physical end of the AUTOBUS cable.

MODBUS address mapping

The TDS14061 controls a Modbus device that has to be set at address 0x50 (hex) or 80 (decimal). It cannot be changed.

! IMPORTANT: To be able to implement external Modbus devices on the TELETASK system, Modbus knowledge is required. The document doesn't describe the working and principles of Modbus. If necessary, please train Modbus skills first. TELETASK doesn't provide nor support Modbus training.

The Modbus protocol on the TELETASK master interface is running over an RS485 bus set to baud rate 9600, 8bit, 1 stop bit, no parity.

To configure in PROSOFT, select "TDS20062LG".

Then you can control HVAC zone numbers 0 to 255.

Address mapping of the indoor HVAC zones

Each indoor zone is addressed in PROSOFT from 0 to 255. In Modbus this is addressed as here below:

! Remark: Digits start after "0x". "0x" just stands for "the following number is written in Hex format".

The addressing for zone 0 is:

Coils Register	0x1001 On/Off
Holding Register	0x1001 Mode
Holding Register	0x1002 Fan Speed
Holding Register	0x1003 Set Temperature
Input Register	0x1001 Room Temperature
Input Register	0x1002 Failure Code

For the next 255 zones you have to change the first three digits from 100 to 101 up to 1FF

As example for zone 25 the mapping will be:

Coils Register	0x1191 On/Off
Holding Register	0x1191 Mode
Holding Register	0x1192 Fan Speed
Holding Register	0x1193 Set Temperature
Input Register	0x1191 Room Temperature
Input Register	0x1192 Failure Code

Value description

6 different registers are used to hold values: On/Off, Mode, Fan Speed, Set Temperature, Room Temperature, Failure Code

On/Off

-> Read/Write with Modbus command COIL BIT (READ=0x01, WRITE=0x05)

-> Value 1 = Zone is ON

-> Value 0 = Zone is OFF

Mode Cool, Heat, AUTO, DRY, VENT

-> Read/Write with Modbus command HOLDING REG (READ=0x03, WRITE=0x06)
 -> Value 0 = Cooling
 Value 1 = Heating
 Value 2 = Auto heat/cool
 Value 3 = Dry
 Value 5 = Ventilation
 -> If you use auto mode and the external HVAC systems supports auto mode, please set also in PROSOFT.
 -> unselect the modes un PROSOFT the external system does not support.

Fan Speed Low, Medium, High, Auto

-> Read/Write with Modbus command HOLDING REG (READ=0x03, WRITE=0x06)
 -> Value 0 = Low
 Value 1 = Medium
 Value 2 = High
 Value 3 = Auto
 -> If the external system supports 'auto fan speed', please set also in PROSOFT (in the HVAC Modbus master interface configuration screen).

Set temperature

-> Read/Write with Modbus command HOLDING REG (READ=0x03, WRITE=0x06)
 -> Value = degrees Celsius with resolution 1°C
 -> Set in PROSOFT HVAC resolution on 1°C

Room temperature

-> Read with Modbus command INPUT REG (READ=0x04)
 -> Value = degrees Celsius with resolution 1°C

Failure code

-> Read with Modbus command INPUT REG (READ=0x04)
 -> Value = error code displayed in diagnostics

POSSIBLE TELETASK ERROR MESSAGES COMING FROM THE TDS14061 MASTER INTERFACE DISPLAYED ON TOUCH-PANELS (E.G. AURUS-OLED) AND DIAGNOSTICS

"data?"

No information from master interface (check AUTOBUS connection).

"sens?"

Indoor unit not found.

"version?"

Wrong software version in interface, upgrade interface.

"slave?"

No Modbus interface found by the Master interface. (Check connection between Master and custom device).

"error"

Unspecified 'other' error.

POSSIBLE ERROR MESSAGES COMING FROM HVAC SYSTEM DISPLAYED IN PROSOFT DIAGNOSTICS ONLY

"HVAC error: xxx"

See failure code in address mapping.

INSTALLATION

DIN-rail mounting

4 modules wide

CONNECTIONS

AUTOBUS

AUTOBUS connector set + patch cable supplied with this unit

External override

Override input: voltage free contact
 0.34mm² for max cable length 100m.

POWER CONSUMPTION

AUTOBUS

Max. 230mA including the slave unit.

DIMENSIONS

72W x 90H x 60D (mm)

NET | GROSS WEIGHT

0,139 kg | 0,220 kg

PACKAGING CONTENT

TDS140061 master interface
 AUTOBUS connector set
 AUTOBUS patch cable

ENVIRONMENTAL CONDITIONS

Storage (with no condensation or icing)

Temperature: -20°C to +65°C max.
 Relative humidity: 5% to 85% max.

Operation (with no condensation or icing)

Temperature: 0°C to +50°C max.
 Relative humidity: 5% to 80% max.

IP PROTECTION RATE

IP20