

Intelligent Building Solutions

Installation Manual



CTS 2010 DRB THERMOSTAT UNIT

- DIN-rail mounting

CIB-tech

Introduction

The CTS 2010 DRB is a digital thermostat using an external temperature sensor, part of the CIB-tech automation system.

Additional Equipment Required

1. Functional CIB-tech system

A minimal number of essential CIB-tech components to make a functional CIB-tech system¹

2. Temperature sensor

For temperature sensing a SMARTEC SMT16030 digital temperature sensor is required².

IBS provides various encapsulated or enclosed versions of easy to install, SMT16030-based temperature sensors³.

3. Electrical valve controller (for liquid agent systems)

For heating or cooling systems with liquid thermal agent, a two-state (on/off) valve controller (eg. thermal drive actuator) is required for thermal agent control⁴. Note that some heat exchangers (radiators) have built-in actuators.

Technical Specifications

Electrical characteristics

● Power Supply

The CTS 2010 DRB functions as a node in a CIB-tech system, being powered from the CIB-tech system's power supply via the CIB-tech connectors.

- Operating voltage range: 20 to 28V DC (nominal 24V DC)
- Supply current
 - Standby current : 17mA
 - Maximum current⁵: 50mA

● Power rating (voltage-free relay output)

- Rated AC voltage: 250V AC
- Rated DC voltage: 30V DC (resistive load)
- Rated current: 8A

● Power output (for temperature sensor)

- Output voltage: 5V DC
- Maximum output current: 100mA

● Signal Input (from temperature sensor)

- Duty-cycle measurement input, conform SMT16030 specifications:
 - supported input voltage levels: 0 - 5V
 - input impedance: >1.5KOhm

Note: The maximum cable length between CTS 2010 DRB and the SMT16030 temperature sensor is 20 m

1 See "CIB-tech installation manual" for details.

2 For details on SMARTECs SMT16030 digital temperature sensor visit SMARTEC home page:

<http://www.smartec.nl/> .

3 For details, visit IBS homepage or see "IBS equipment list".

4 See "Recommended equipment to be used with CIB-tech" for details

5 This value is calculated with SMT16030 temperature sensors connected to the 5V power output of the device. If the 5V power output of the device is used for any other purpose, the maximum current consumption may exceed specified the value.

Temperature measurement

- Measured temperature range: -45°C to +130°C
- Temperature resolution: 1°C
- Typical accuracy⁴: ±0.7°C

Mechanical characteristics

The CTS 2010 DRB has a standard 2-module wide enclosure for M36 type DIN-Rail

- Dimensions: 102mm W x 35mm L x 60mm D
- Weight: 95g

Environmental characteristics

- Operating temperature: -10°C to 85°C
- Storage temperature: -25°C to 100°C

Key Features

- Bistable relay output: maintains contact state in case of network power failure
- Programmable output type: N.O. (normally open) or N.C. (normally closed)
- Two operating modes: heating or cooling
- Weekly temperature schedule
- High speed temperature acquisition (up to 40 samples/second)
- 256-entry temperature history with configurable logging interval
- Internal bi-color LED, indicating the heating/cooling state (green: heating/cooling is off / red: heating/cooling is on)

Installation

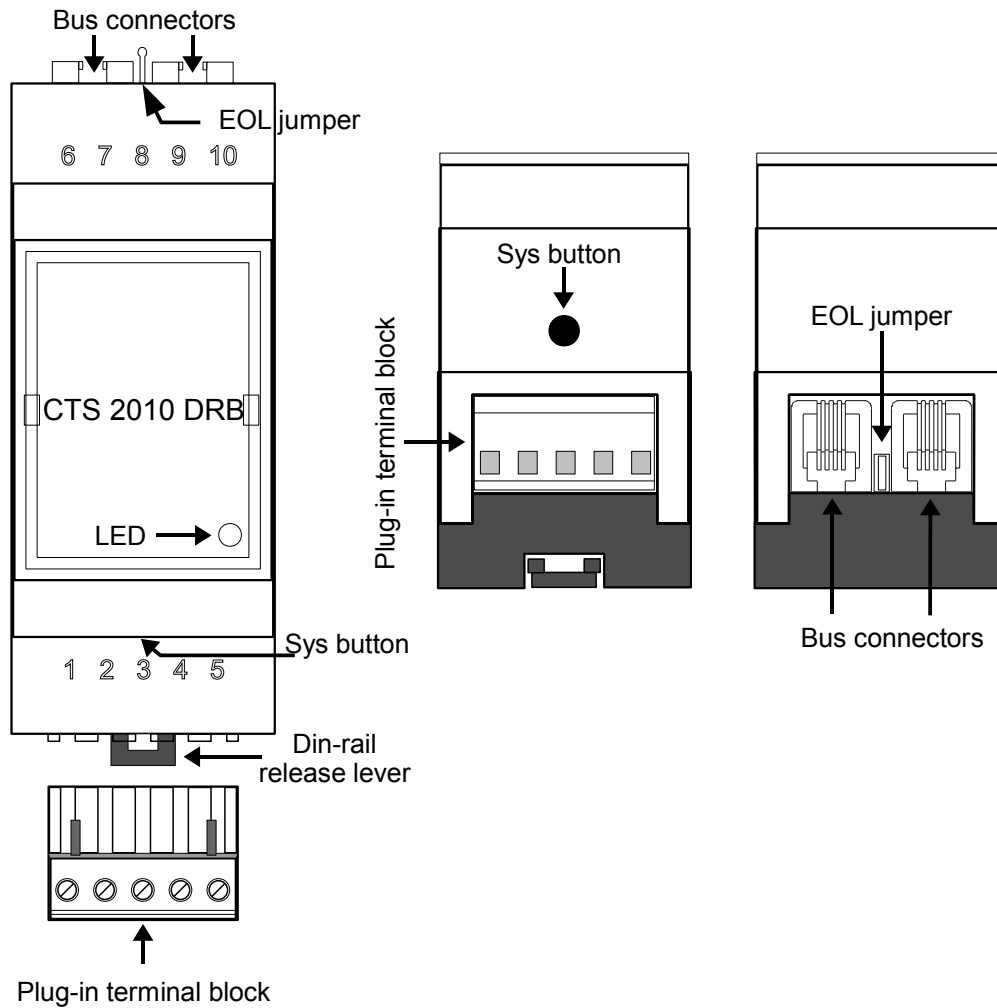
The CTS 2010 DRB is meant to be installed on a standard M36 type DIN-Rail.

Part description

- **Bus connectors:**
 - 4P4C modular jack connectors for CIB-tech connection¹
- **Sys button:**
 - pushbutton for CIB-tech system configuration
- **EOL jumper:**
 - CIB-tech system's End Of Line jumper¹
- **LED:**
 - Indicator LED for heating/cooling state
- **DIN-rail release lever:** lever for removing the device from the M36 DIN-Rail
- **Plug-in terminal block:** terminals for connecting the temperature sensor:
 1. Temperature sensor – GND
 2. Temperature sensor – Data
 3. Temperature sensor – +5v
 4. Relay contact 1
 5. Relay contact 2

⁴ Accuracy depends on the type of SMT16030 used.

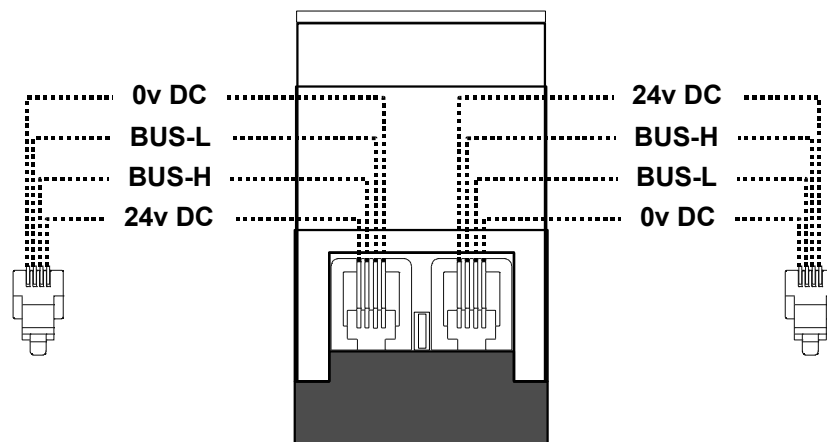
² See “CIB-tech installation manual” for details.



Wiring diagrams

Connection to CIB-tech system:

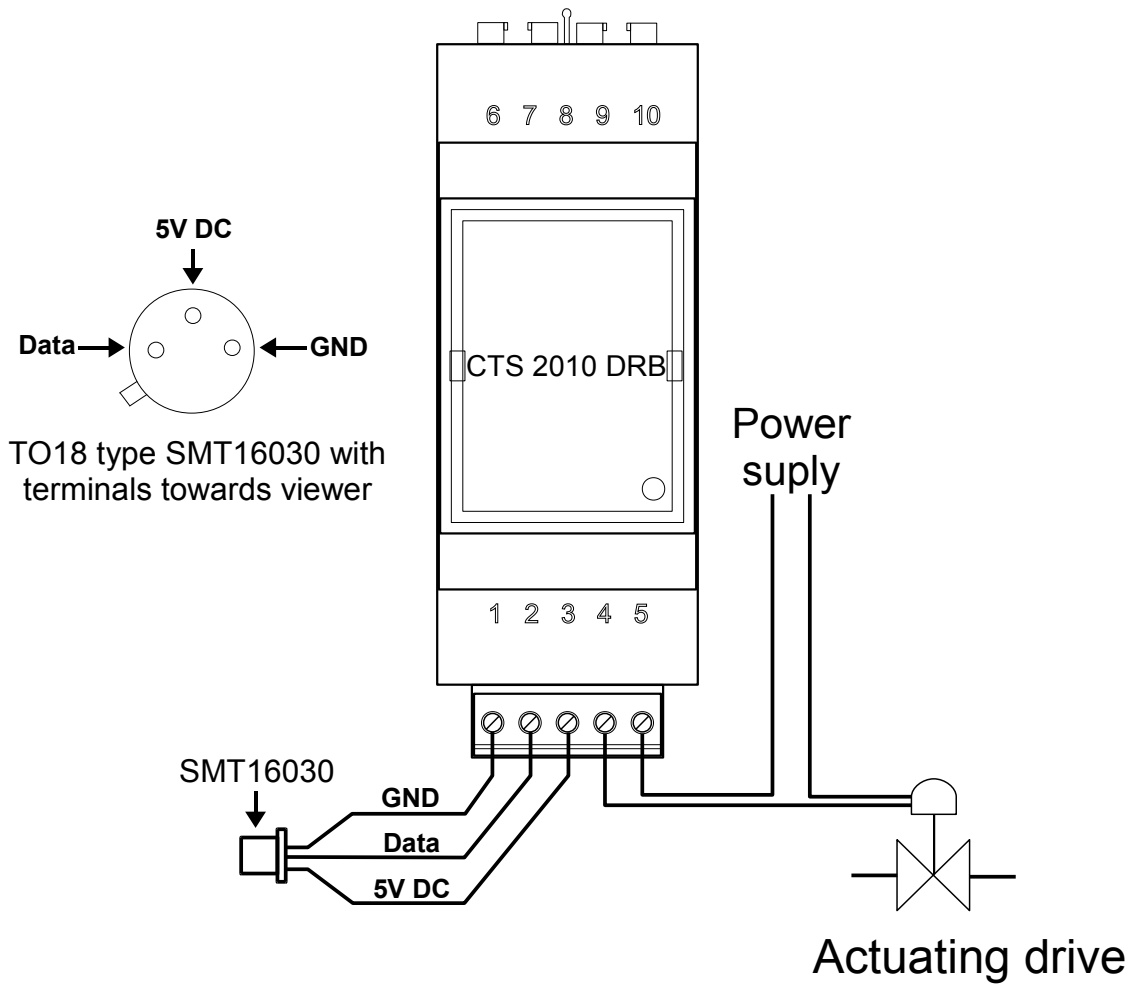
Use the CTS 2010 DRB device's two 4P4C modular jack connectors to connect it to the CIB-tech systems (chain like) bus. Do not forget to remove the EOL jumper if the device is not the last element of the chain¹



¹ See "CIB-tech installation manual" for details.

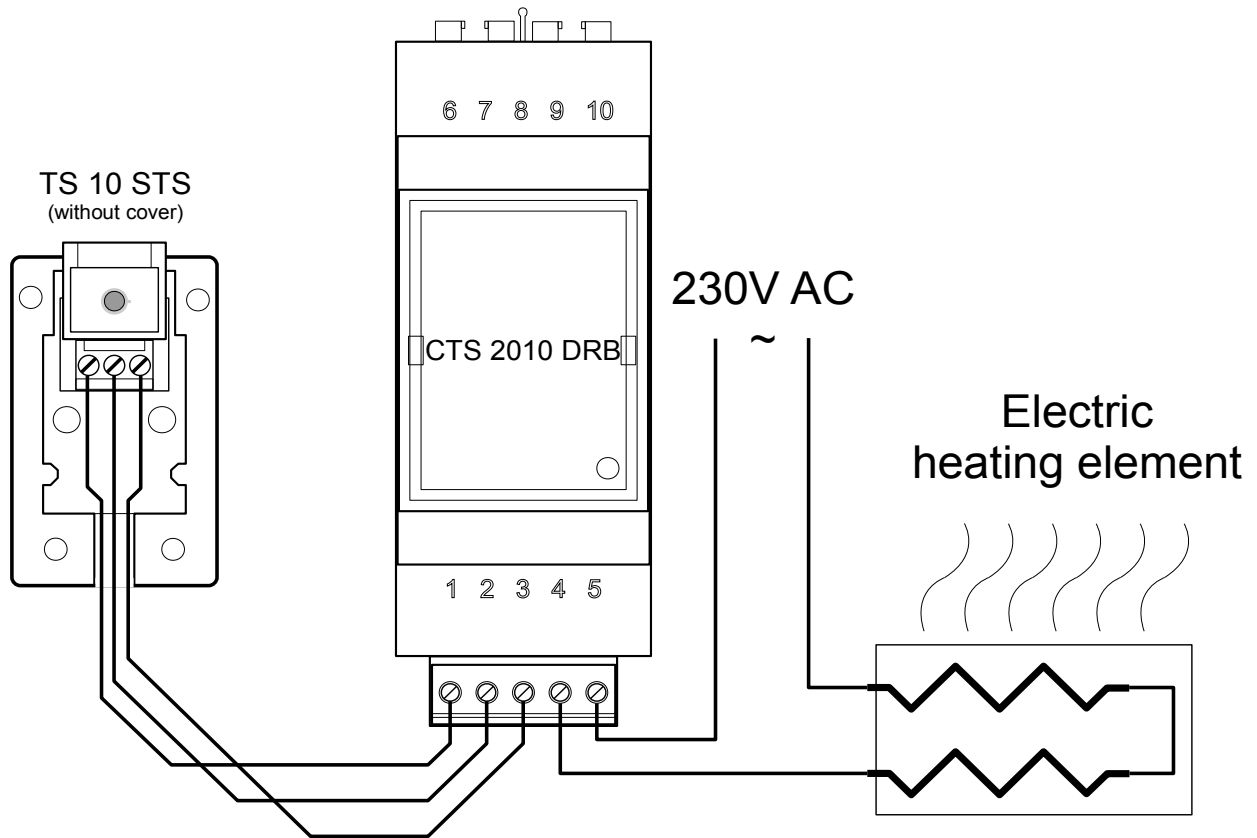
Connecting the temperature sensor and control element

Connection example for temperature sensor and actuating drive:



NOTE: This connection example is for a TO18 type SMT16030. To connect other types of SMT16030, check SMARTEC home page for SMT16030 data sheet.

The typical actuator power supply voltage is 230VAC or 24V AC/DC depending on actuating drive type. Connection example with boxed, wall mountable, temperature sensor TS 10 STS and electric heating element.



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