

M-RT-s: Temperature control module

Document number: PO-018-EN Version: 1.1.0 Date of publication: April 15, 2024



Technical data

Supply voltage

11 – 16V DC

Current consumption

30mA

Temperature control

yes

Dimensions

Width

53mm, 3 spaces/modules in DB

Height (incl. plugs)

100mm

Depth

65.5mm

Environment

Temperature

-40 – 50°C

Humidity

≤95%RH, non-condensing

The image above is for illustration purpose only. The actual module may vary from the one presented here.

General features

Module M-RT-s is a component of the Ampio system. Required voltage to power the module is 11 – 16V DC. The module is controlled via CAN bus.

The module allows for the implementation of temperature control logic. Regulation is performed independently for a number of defined zones.

Within each zone, a temperature sensor is indicated, which determines the zone's current temperature. The selection is made from sensors connected to any of the Ampio modules equipped with a 1-Wire interface, or sensors that are integrated into the building automation system in any other way, for example via integration modules.

Each zone gets one or more associated heating or cooling device. Interaction with devices is performed by any output or integration module present within the building automation bus.

The temperature control's setpoint can be set by an end user manually via the mobile app or via Ampio touch panels. For each zone, two temperature values are also defined - day and night temperature. Switching the regulator between these temperatures takes place on the basis of defined time schedules. The values of said temperatures and schedules can be altered by the end user using a mobile application.

Based on the measured value of the control zone's current temperature and the current setpoint, the operation of defined heaters and coolers is controlled. The process can be governed by the following control algorithms:

- bang-bang controller with hysteresis,
- PID controller.

Depending on the version of the module purchased, it can handle from 1 to 32 temperature control zones.

Real time clock

The device has a real-time clock to support schedules. Date and time can be set at the configuration stage and using the display and buttons on the device's casing. Date and time can also be synchronised with NTP servers through the M-SERV family devices.

Typical application

- Room temperature control.

Installation

The module is designed for mounting on a 35mm DIN rail. The module's width is 53mm, 3 spaces/modules in DB. In order to start the module, it must be connected to the CAN bus. The bus of the Ampio system consists of four wires - two for power and two for communication between the modules.

Programming

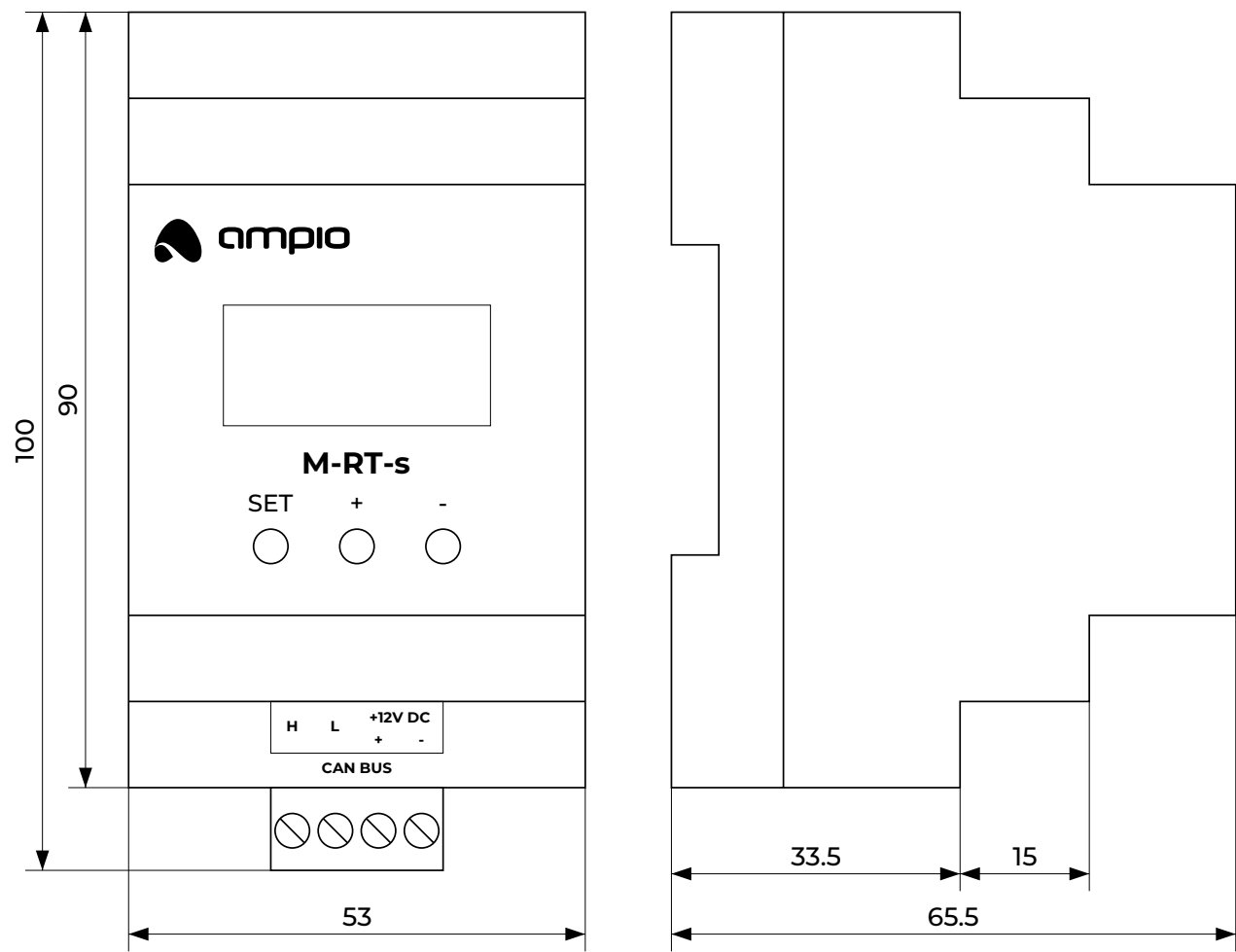
The module is programmed with the use of the [Ampio Designer](#) software. It allows you to modify the parameters of the module and define its behaviour in response to signals directly available to the module as well as general information coming from all devices present in the home automation bus.

The M-RT-s module broadcasts information about the current time in the automation bus every full minute. The rest of the system's devices listen to this information only when their configuration includes time-dependent conditions. In a situation where a time-dependent configuration is uploaded into a device without internal information about the current time, the information from the M-RT-s will be interpreted by this device only at the next full minute and only then it will be possible to evaluate the time condition.

The described specificity of operation does not have any impact on the functioning of the system during its normal operation, but it may lead to the erroneous impression that the condition does not work during programming.

Module dimensions

Dimensions expressed in millimeters.



Connection diagram

