M-SERV-NANO PRO: Remote management module in the form of an industrial computer

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

General features

The M-SERV-NANO PRO module is part of the Ampio system. The module is powered from the server's USB port and a CAN bus cable in the range of 11-16V DC. The M-SERV-NANO PRO server is characterised by greater computing power, which is selected at the order stage.

M-SERV-NANO PRO is a communication gateway for Ampio mobile applications - both within the local network and via the Ampio Cloud platform - and enables IP integration.

Mobile application

The Ampio UNI mobile application enables control over the building automation installation via smartphones and tablets. It also allows the end user to define and run scenes and implement simple automation rules.

The Ampio UNI mobile application makes it possible to connect to a home automation installation remotely, via the Ampio Cloud platform, and locally using a LAN. Users who do not want to utilise the Ampio Cloud platform can still use the application within the local area network.

In order to ensure smooth access to building automation installations, there is a limit on the number of simultaneous active connections to the installation via Ampio Cloud. A maximum of 6 users can connect remotely to the installation at the same time, of which a maximum of 3 profiles can be used for the connection of monitoring systems.

IP integrations

With the use of the module, it is possible to integrate devices and services that provide integration interfaces within the computer network. Integration rules are implemented in the Node-RED open source platform that allows for the definition of information flows and processing diagrams.

In the Node-RED environment, interaction with external devices and services can be accomplished in a number of ways. A technologically skilled user can carry on integrations based on basic communication interfaces, such as HTTP API or MQTT. There is also a possibility to use ready-made integration blocks developed by the Node-RED project community.

The Node-RED environment is available to both the installer and the end user. Integrations implemented with its use may apply to devices from other manufacturers, as well as services available in the network. There is also an option, for example, to send SMS messages using GSM gateway services, or display information on stock exchange quotations or weather forecasts on touch panels.

At the device configuration stage, it is also possible to implement simple IP integration rules through the Ampio Designer software.

SIP server

The device includes an SIP server intended for integration with intercoms supporting the VoIP technology. When properly configured, it allows one to receive intercom calls on smartphones or tablets. It is also possible to configure an external VoIP service provider, thanks to which receiving calls from intercoms or other integrated VoIP devices will also be feasible from outside the local network.

The M-SERV-NANO PRO module also defines its internal telephone number intended for invoking actions via VoIP connection. At the device configuration stage, one can define the reaction of the building automation system to specific sequences of numbers and characters * and #, sent to the device during a VoIP call with the above-mentioned number.

Other network-related functionalities

In addition to the described features, the device also supports the following functionalities:

- DDNS client,
- option to configure a TLS protocol for local connections,
- HTTP API.

Temperature control

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 recognised, 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.

One or more heating or cooling devices are associated with each zone. Interaction with devices is performed by any output or integration module present in the building automation bus.

The temperature control set value can be determined by the end user manually via the mobile app or via Ampio touch panels. Through the mobile application, the user also has the option of defining time schedules that specify the expected temperature of each zone in time.

For each zone, two specific temperature values are also defined - comfortable and economical. Switching the controller set point value to one of the temperatures mentioned above can be quickly triggered by any other building automation device, e.g. by pressing a touch panel's field. The values of these temperatures are defined by the end user and may also be used as a part of schedule definitions.

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

- bang-bang controller with hysteresis.

The module can support between 1 and 32 temperature control zones.

Example application

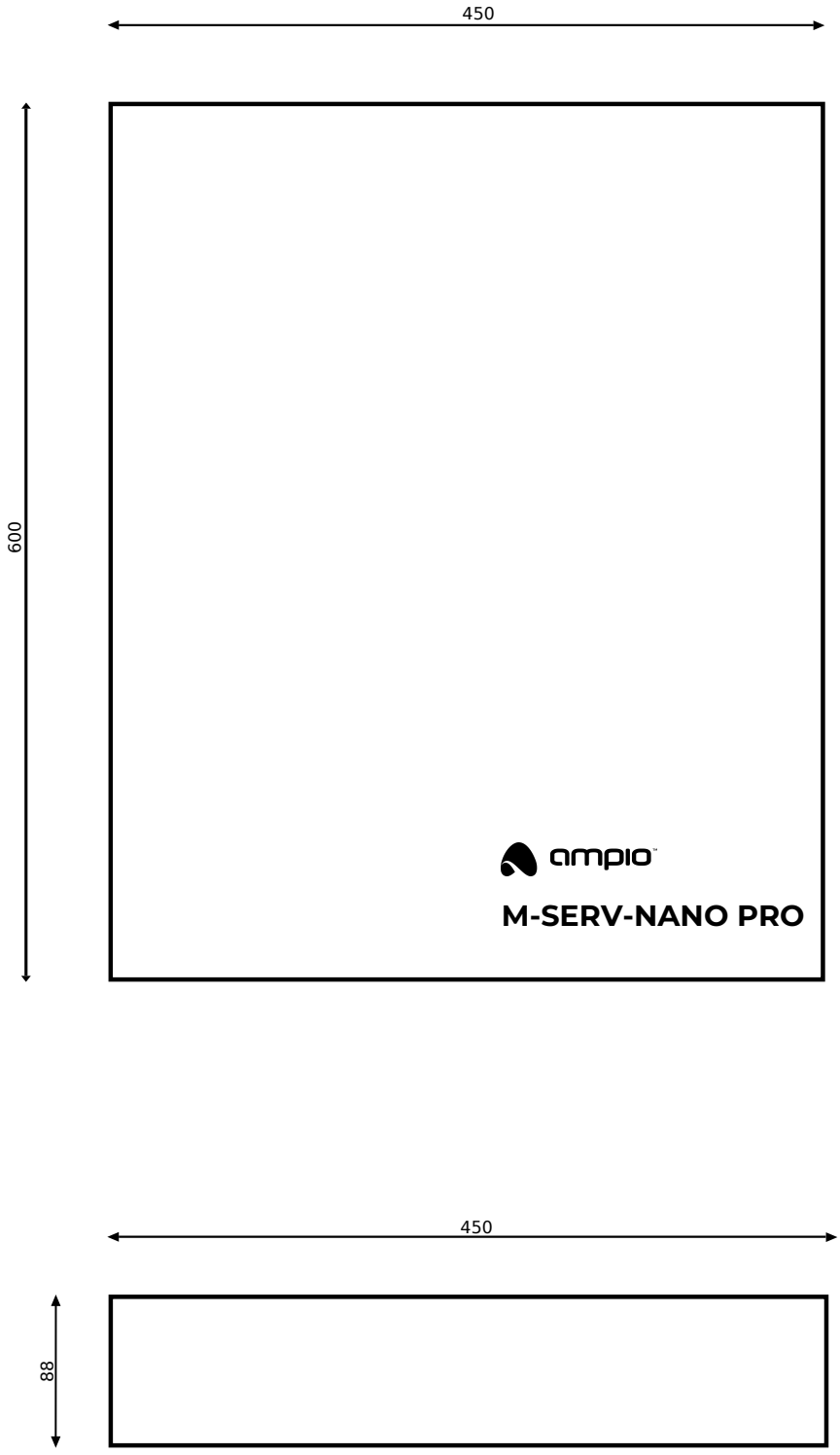
- Remote control of the installation via smartphones and tablets;
- integration with devices and services providing integration interfaces within a computer network;
- downloading information from the network for display on M-DOT touch panels;
- SIP integration with intercoms;
- SIP integration with intercoms;
- defining and activating scenes;
- regulating room temperature.

Programming

The module is programmed using the Ampio Designer tool. It allows you to modify the module's parameters and define its behaviour in response to signals directly available to the module, as well as general information from all devices present on the building automation bus.

Module dimensions

Dimensions expressed in millimeters. The modules are manufactured in several different standards. The dimensions of a specific M-SERV-NANO PRO server and its installation method are determined individually with the customer and specified during the ordering process. The dimensions presented below are for reference only.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M-SERV-NANO PRO
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Connection diagram