



System illustration

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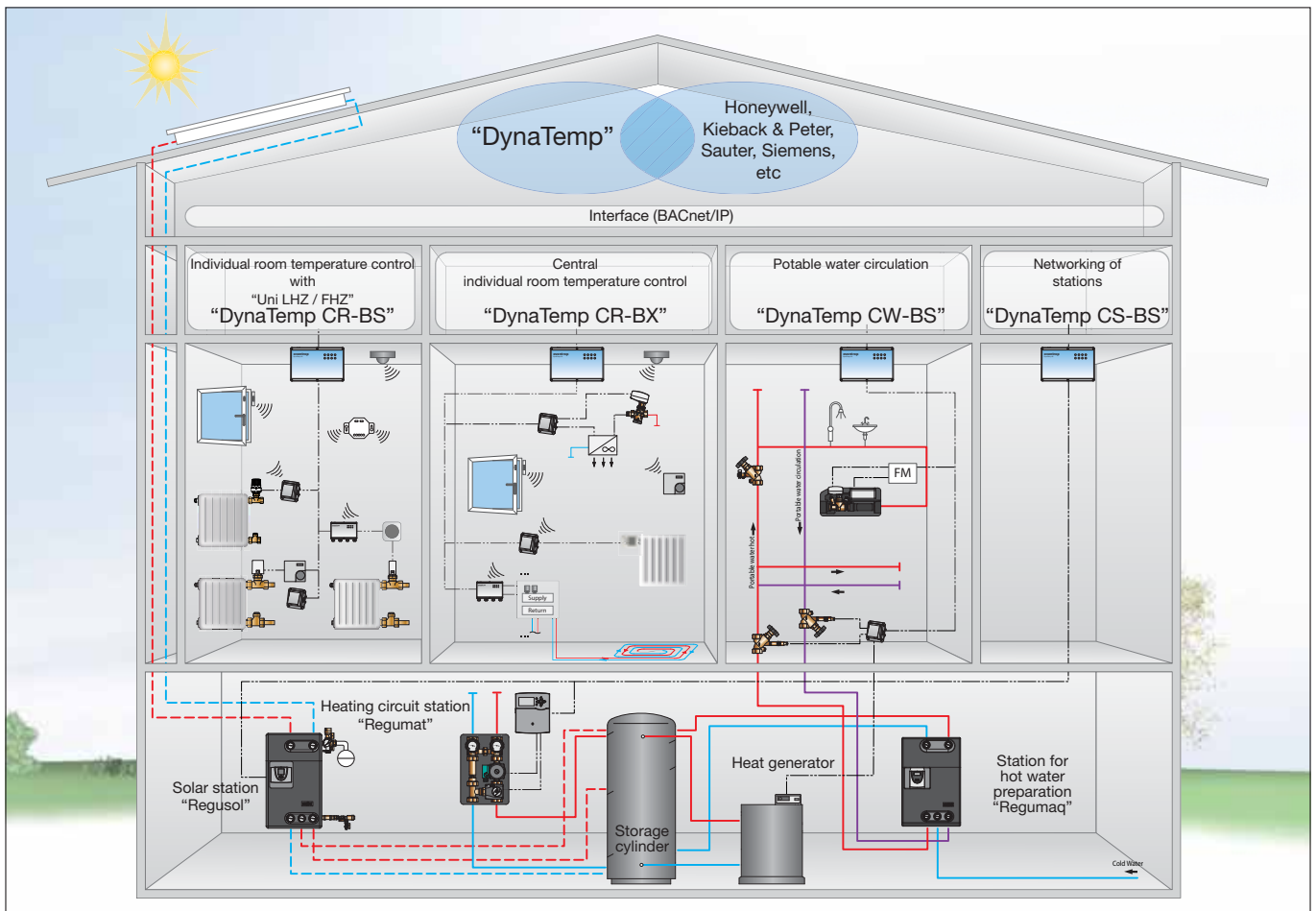
Introduction

Systems in the building automation become more and more important not only in new buildings but also in existing buildings requiring refurbishment. Building automation with its monitoring, control, regulating and optimisation devices is an essential pre-condition for a comfortable, energy efficient and economical building management.

This pre-condition can, however, only be fulfilled if the control units and other components are co-ordinated to the optimum and if they reliably adapt to the different requirements during heat transport and heat transmission.

Oventrop offers their own modular building automation system called "DynaTemp". The system is used for individual room temperature control, temperature control, potable water circulation, hydronic balancing as well as heat generation, storage and distribution.

Integration into the systems of various other manufacturers is also possible.



System illustration

“DynaTemp” System summary/Advantages

“DynaTemp” is a modular system for the automation of systems for heat generation, distribution and transmission as well as cooling, ventilation and sanitary.

The Oventrop components with sensors and actuators are the basic components in the so-called room or field level. They are connected to the “DynaTemp” control units (automation stations) via bus based room or field modules and provide automation of individual tasks of a centralised building control system. To save energy and increase comfort conditions for the user, the “DynaTemp” control units handle the relevant tasks. Standardised interfaces allow a centralised building control system with external access to be created.

The control stations can also be integrated into an existing building control system via “BACnet/IP”. Monitoring of the automated appliances can be carried out via the central access.

Modification and viewing of the installation parameters is possible with direct connection to a computer. When connected to a LAN network, it is also possible to access these parameters via internet. The control stations and their software are programmed for use in heating, sanitary and cooling systems.

“DynaTemp CR-BS” and “DynaTemp CR-BX” are used in conjunction with components with bus technology for room temperature control.

For “DynaTemp CR-BS”, control is carried out at the radiator. For “DynaTemp CR-BX”, control is carried out centrally in the automation station.

“DynaTemp CW-BS” is used to monitor and control the circulation of potable water during a period of thermal disinfection.

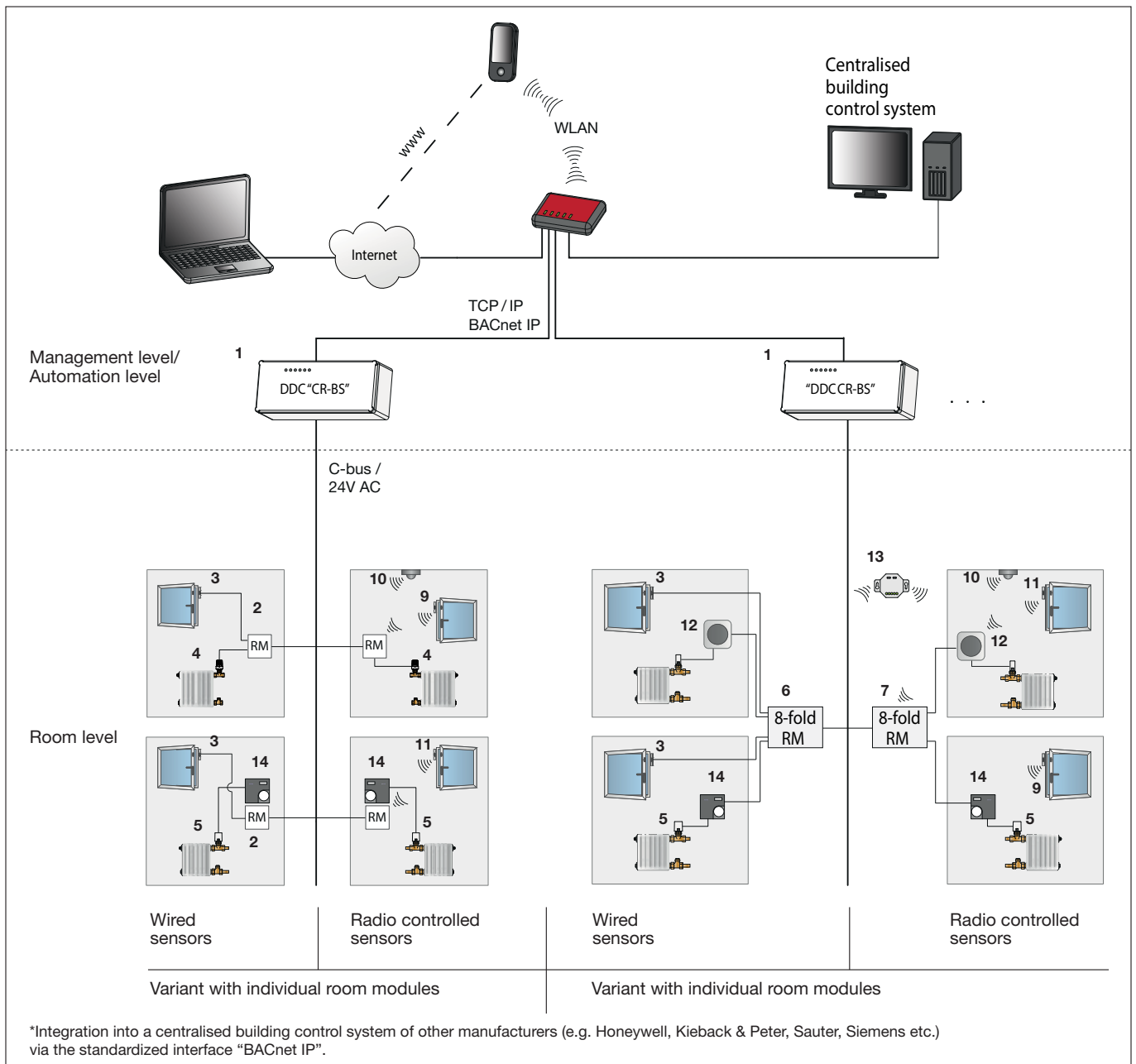
“DynaTemp CS-BS” is used to control the efficient storage and distribution of heating obtained from renewable sources.

All control stations are marked with their specific product names. They feature interfaces for open bus standards allowing the visualisation, calculation and feedback of the data at all displays within the network.

More detailed description of the functions of each of the “DynaTemp” controls stations are obtained on the following pages.

Advantages of “DynaTemp”:

- Extensive building control system for heating, potable water and cooling systems
- Ease of use
- Modular construction allowing individual modules to be used independently
- High efficient intelligent networking of individual modules
- Based upon open network standards (e.g. BACnet, Web menu, TCP/IP)
- System status documentation
- Connection to standard LAN network appliances



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“DynaTemp CR-BS” is a bus based system for central temperature setback for energy saving. The system features preinstalled software for the control of external room temperature controllers via C-bus room modules. The integrated web server allows access to the system via a PC and a standard web browser.

Individual room temperature control is carried out at the radiator with the help of the thermostat “Uni LHZ” or “Uni FHZ” with conventional sensor technology or at the room thermostat.

Depending on the required setback or heating periods, the individual rooms are controlled via the central unit DDC “CR-BS”.

1 Control unit “DynaTemp CR-BS” for temperature setback, with sensor data transmission via cable or radio.

- 1 CCD “CR-BS” control unit
- 2 “RM-C K” flush-mounted room module, wired, 1-fold
- 3 Wired window contact (installation on site)
- 4 “Uni LHZ” thermostat
- 5 Electrothermal actuator, 24 V
- 6 “RM-C K8” surface-mounted room module, wired, 8-fold
- 7 “RM-C F8” surface-mounted wireless room module, 8-fold
- 8 “RM-C F” flush-mounted wireless room module, 1-fold
- 9 “FK-C F” solar powered radio controlled window contact
- 10 “BWM-C F” wireless movement sensor
- 11 “SecuSignal” window handle of the company Hoppe (installation on site)

- 12 “Uni FHZ” thermostat with remote control
- 13 “RP-C F” wireless repeater for flush-mounted installation, 230 V
- 14 Room thermostat with setback entry



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The room or radiator thermostats “Uni LHZ” or “Uni FHZ” are connected to the room modules and the latter to the central unit via a C-bus cable. These room modules are available with or without wireless receiver. Wired window contacts can be connected to both room modules.

The model with wireless receiver allows the integration of “SecuSignal” window handles of the company HOPPE AG or of solar powered window contacts based on EnOcean radio technology.

1-fold and 8-fold room modules for the connection of the thermostats are available.

Technical data:

DDC “CR-BS”

- Control unit with bus technology for the connection of C-bus room modules
- Surface mounting
- Operating current: 24 V / 50 Hz

Room module “RM-C F/K” for a room with bus communication:

- electric maximum of 50 “Uni LHZ”
- installation conditions allow a maximum of 4 “Uni LHZ”

Room module “RM-C F/K” for eight rooms with bus communication:

- electric maximum of 8 x 50 “Uni LHZ”
- installation conditions allow a maximum of 8 x 4 “Uni LHZ”

1 DDC “CR-BS” control unit with bus technology for the connection of C-bus room modules, surface mounting, operating/bus current: 24 V / 50 Hz

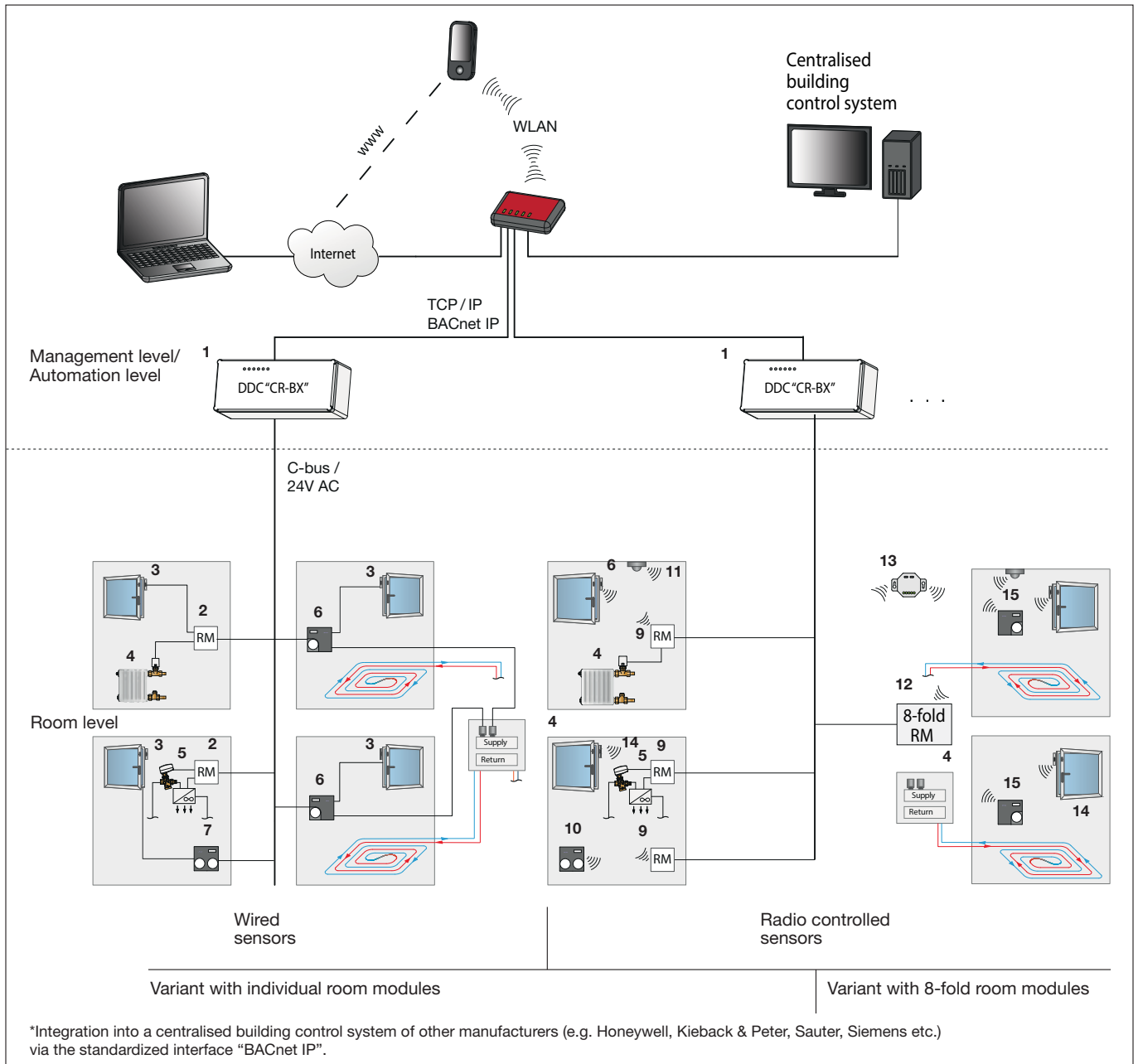
2, 3 In conjunction with the “DynaTemp CR-BS”, the thermostats “Uni LHZ” and “Uni FHZ” allow a timed temperature setback by use of an integrated electrically heated liquid sensor. The operation is identical with that of a standard thermostat. If the thermostat is energized, it switches to temperature setback.

4 Room thermostat with setback unit, 24 V

5 Electrothermal actuator, 24 V

6 Solar powered radio controlled window contact for the transmission of the window position

7 Flush-mounted repeater for amplification of radio signals



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“DynaTemp CR-BX” is a bus based system for central room temperature control. Contrary to the “DynaTemp CR-BS”, room temperature control is carried out centrally at the DDC “CR-BX” unit. This unit includes an integrated web server and can thus be operated by standard web browsers.

The actuators are connected to the control unit via the room modules and the C-bus. Communication between the room thermostats with EnOcean wireless transmitter and receiver and the room modules is carried out via radio transmitter.

1 DDC “CR-BX” for individual room temperature control with control signal transmission via radio transmitter (EnOcean) or cable.

- 1 DDC “CR-BX” control unit
- 2 “RM-C K” flush-mounted room module, wired, 1-fold
- 3 Wired window contact
- 4 Electrothermal actuator, 24 V
- 5 Electromotive actuator, 24 V, 0-10 V
- 6 “RGB-C K” surface-mounted room operating appliance, wired
- 7 Room operating appliance, wired
- 8 “FK-C F” solar powered radio controlled window contact
- 9 “RM-C F” flush-mounted wireless room module, 1-fold
- 10 Solar powered radio controlled room operating device
- 11 “BWM-C F” wireless movement sensor

- 12 “RM-C F8” surface-mounted wireless room module, 8-fold
- 13 “RP-C F” flush-mounted wireless repeater, 230 V
- 14 “SecuSignal” window handle of the company HOPPE AG (installation on site)
- 15 “RGB-C F” solar powered radio controlled room operating device



Window contacts with EnOcean wireless transmitters can also be integrated into the “DynaTemp CR-BX” system. Wireless movement sensors and operating devices can also be integrated. These components allow heating of the rooms according to requirements and energy efficiency is increased as a result.

**Technical data:
DDC “CR-BX”**

- Control unit with bus technology for the connection of C-bus room modules
- Surface mounting
- Operating current: 24 V / 50 Hz

Room module “RM-C F/K” for one room with bus communication:

- maximum of 4 electrothermal actuators (item no. 101 28 16 or 101 29 51)

Room module “RM-C F/K” for eight rooms with bus communication:

- maximum of 8 x 4 electrothermal actuators (item no. 101 28 16 or 101 29 51)

1 DDC “CR-BX” control unit with bus technology for the connection of C-bus room modules, surface mounting, operating/bus current 24 V / 50 Hz

2 Solar powered radio controlled room operating device with EnOcean radio technology

3 Room operating device “RM-C K” with C-bus communication, wired, surface mounting, 24 V / 50 Hz

4 Electromotive actuator, 24 V, proportional actuator (0-10 V)

5 Electrothermal actuators, 24 V, two point or steady control (0-10 V)

6 Flush-mounted repeater for the amplification of radio signals

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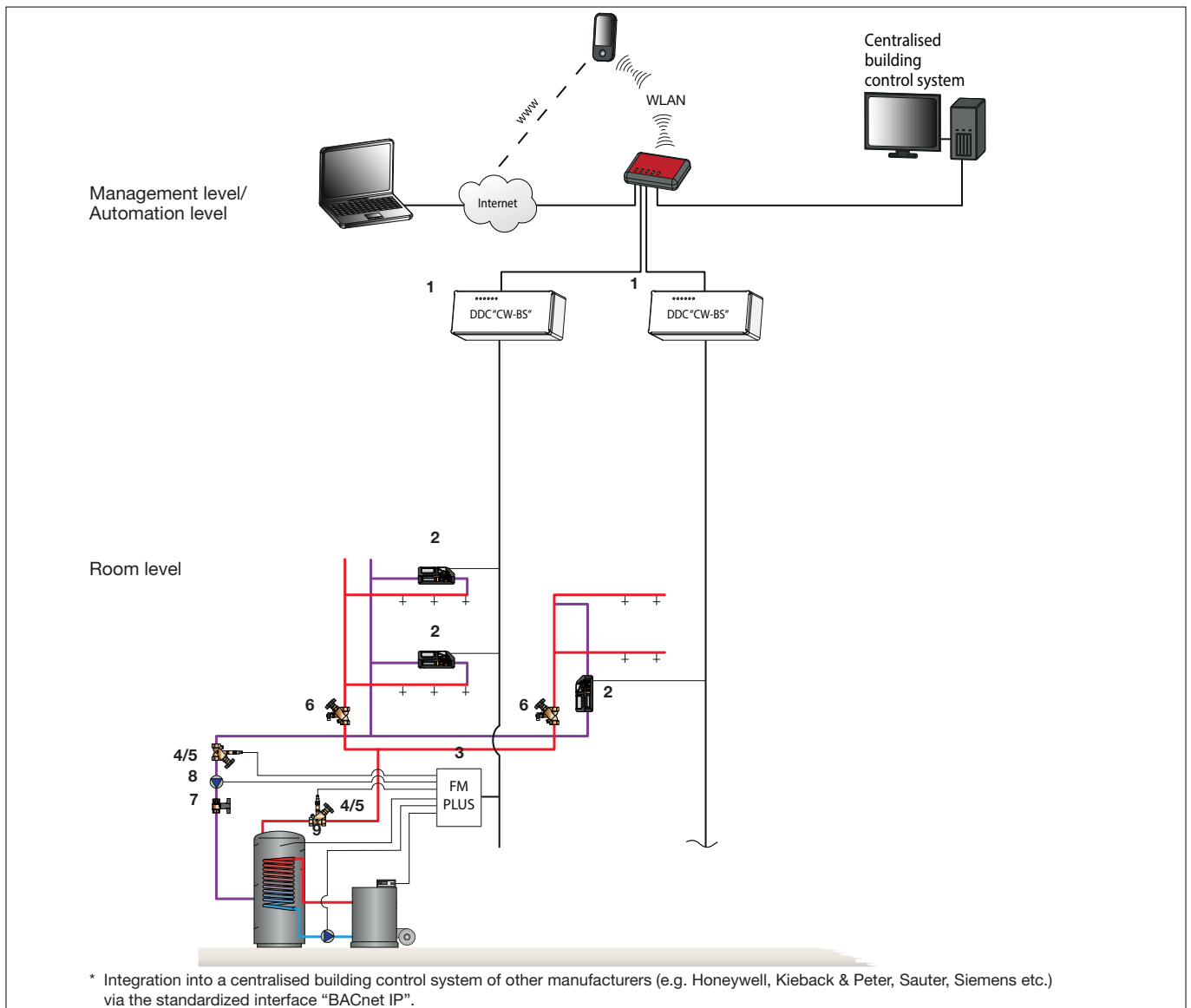
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“DynaTemp CW-BS” is a bus based system for automatic thermal balancing and thermal disinfection in potable water circulation systems according to DVGW work sheets W 551 and W 553.

The regulating valves “Aquastrom DT” with electromotive actuators and temperature sensors are connected to the C-bus via the bus application field modules.

Configuration of the operating mode “Master” is carried out automatically during installation.

The integrated web server allows access to the system via a PC and a standard web browser. Settings of the installation parameters (e.g. time profiles) and a query of the separation data, the current status and the disinfection records can be carried out via the menu.

An external 24 V transformer should be used for the power supply.

The installation hydraulics which is, however, governed by the maintenance of an adequate potable water circulation temperature (according to DVGW 55°C) is optimized by the stations.

Temperature detection is carried out by the Oventrop valve “Aquastrom DT” for potable water circulation systems. The sensor temperatures are transmitted to the automation station via the bus based field module and the control demands for the “Aquastrom DT” are transmitted to the actuators by the “DynaTemp CW-BS” via the field module. Thermal disinfection is also controlled via the automation station. The latter transmits a starting signal to the boiler control, the potable water is increased and thermal disinfection of the risers of the circulation installation is carried out. The automation station can be connected to the centralised building control system for monitoring and visualization purposes. Warning messages can be transmitted via LAN, internet or mobiles.

1 “DynaTemp CW-BS” for automatic thermal balancing and thermal disinfection in potable water circulation systems.

1 DDC “CW-BS” control unit

2 “Aquastrom DT” regulating valve including field module with actuator 24 V, 0-10 V and temperature sensor

3 “FM-CW Plus” field module for the connections of sensors and pumps

4 “Aquastrom FR”

5 Temperature sensor G 1/4

6 “Aquastrom KF”

7 “Optibal TW” potable water ball valve

8 Circulation pump

9 Storage cylinder temperature sensor PT 1000



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1 DDC “CW-BS” control unit with bus technology for the connection of C-bus field modules, surface mounting, operating/bus current 24 V / 50 Hz

2,3 “Aquastrom DT” electromotive circulation valve for electronic regulation of the required residual volume flow in conjunction with the control unit DDC “CW-BS”, bronze, without dead zone, both ports male thread according to DIN ISO 228, flat sealing, temperature sensor PT 1000, steady electromotive actuator 24 V (0-10 V), including draining valve for hose connection in front of the control unit, non-return check valve and insulation shells made of EPP according to the Energy Saving Directive, fire protection class B 1

Potable water installations PN 10

Max. water temperature 90°C

not illustrated – “Field module W Plus”

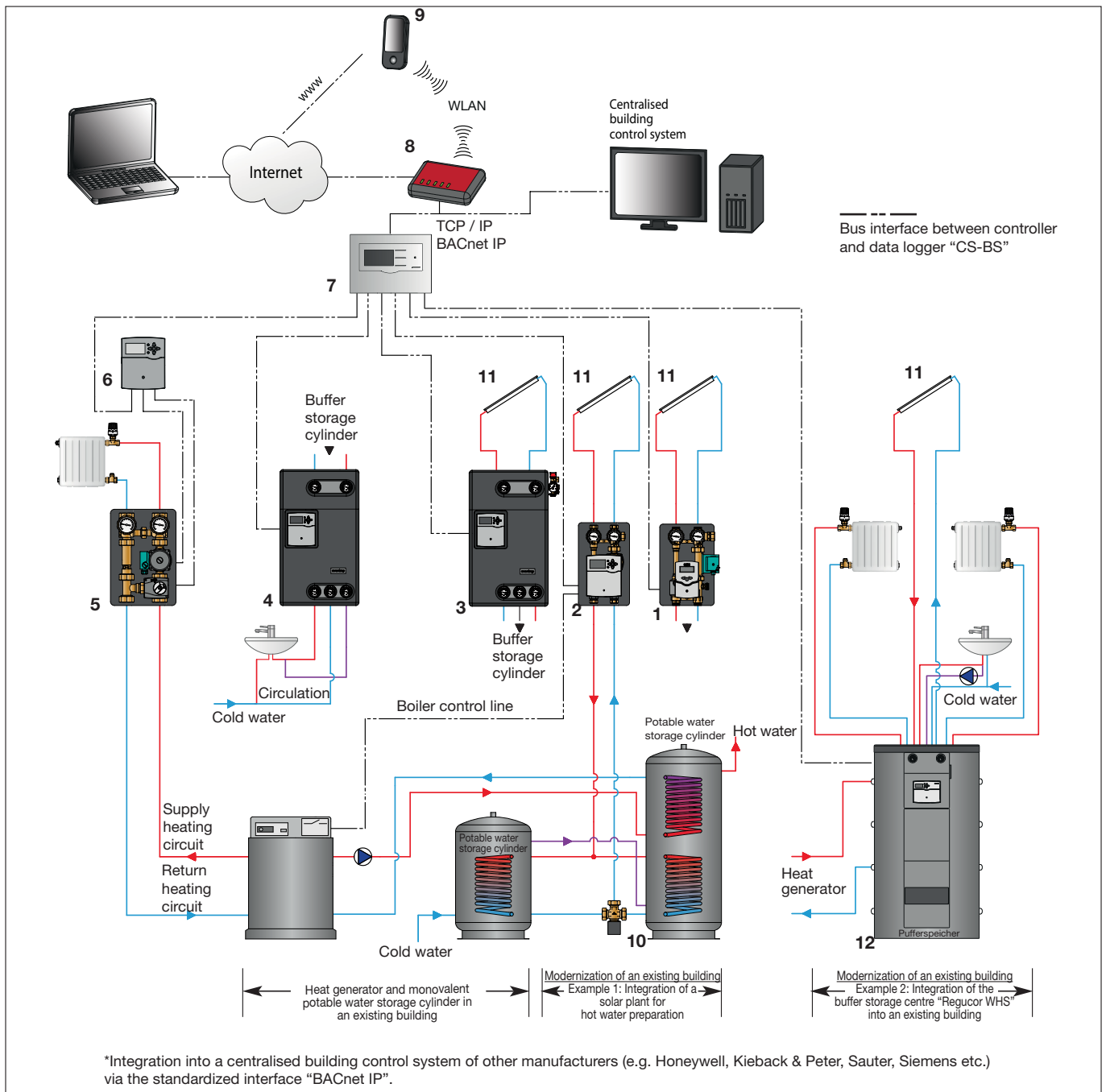
For the connection of sensors and pumps with C-bus communication, surface mounting, 24 V / 50 Hz



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“DynaTemp CS-BS” allows the linkage of up to 6 bus application controllers of stations for solar heat generation, heating of potable water and different heating circuits via a bus technology (S-bus). The data from the different controllers are fed into the data logger “CS-BS” in order to store and view the operating status, temperatures and flow rates over a longer period. New parameter settings for the controllers can be determined with the help of these data and the operation behaviour of the complete installation, including the storage cylinder and boiler can be improved. A diagnosis of errors can also be carried out.

The installation data can be viewed via a PC or a standard smartphone, e.g. iPhone or Blackberry. The integrated Web interface allows the access to the system via a standard web browser.

The connection to the network (LAN) and the internet can be carried out via a standard router. A flexible, even external, access to the installation is thus possible. It is, however not necessary to integrate the data logger into a network, the direct connection of a PC is also possible.

1 “DynaTemp CS-BS” networking of stations for heat generator/heating circuit and solar thermal energy

- 1 “Regusol EL-130” with controller “Regtronic BS/2-B”
- 2 “Regusol ELH-130” with controller “Regtronic RC-B”
- 3 “Regusol X” with controller “Regtronic RX-B”
- 4 “Regumaq” with controller “Regtronic RQ-B”
- 5 “Regumat M3”, further stations for the connection heating circuit/heat generator see product range 6
- 6 “Regtronic RH-B” heating circuit control
- 7 “DynaTemp CS-BS” data logger
- 8 Standard router/switch (e.g. Fritzbox)
- 9 Mobile displays (iPhone, iPod touch, iPad, Blackberry etc.)
- 10 Bivalent storage cylinder
- 11 “OKF” flat plate collector or “OKP” tube collector
- 12 “Regucor WHS” with controller “Regtronic RS-B”



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1 Data logger “CS-BS” for an easy networking and visualization of different components/controllers for solar thermal energy, heating and fresh water technology.

The following controllers can be connected to the data logger “CS-BS” via S-bus:

“Regtronic BS/2-B”

“Regtronic RC-B”

“Regtronic RX-B”

“Regtronic RQ-B”

“Regtronic RH-B”

“Regtronic RM-B”

“Regtronic RS-B” (“Regucor WHS”)

Parameterization and reading-off of the controller data via an integrated web interface. The registered data (temperatures, flow volume, output and operating status, etc.) can be transmitted from the data logger to a PC, mobile displays or the centralised building control system.

Interfaces:



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Software

The central unit “DynaTemp” is equipped with the required software and can easily be integrated into an existing computer network. The software is selected by an internet browser by entering the IP address of the corresponding central unit in the address line.

Operation of the menu is intuitive and can be compared to internet pages. For an efficient operation of the system, the parameters can be set with a few mouse clicks.

1 Screen shot of the heating plan in the central unit “DynaTemp CR-BS”

Potential of energy saving

A reduction of the room temperature by only 1°C provokes an energy saving of about 5-6%.

2 The graphic illustrates the possible energy saving in the Building Services Industry depending on the use of “intelligent” technologies.

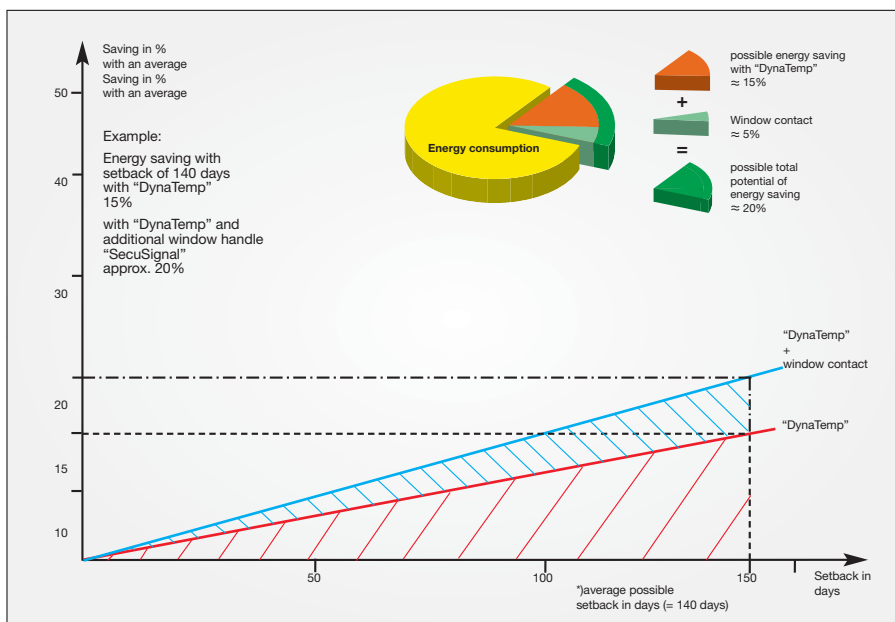
In this instance, an average room temperature setback of about 3-4 Kelvin on approx. 140 days of the heating period/year were assumed:

The use of the “DynaTemp” technology results in an energy saving of about 15% during the heating period.

The use of the “DynaTemp” technology together with the window contacts can save up to 20% of energy.

3 Screen shot disinfection record in a potable water circulation system during thermal disinfection (DDC “CR-BS” central unit).

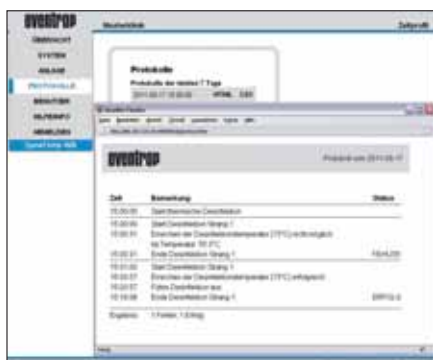
4 Screen shot separation data during disinfection phase (DDC “CW-BS”).



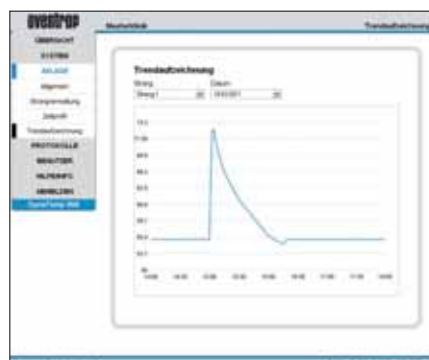
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Further information can be found in the Oventrop catalogue “Products” and on the internet, product range 8.

Subject to technical modifications.



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