

September 2018

# Valve Drive Controller and more

Webinar – Competence Center Europe – Building Automation

Ilija Zivadinovic, Martin Wichary, Juergen Schilder, Thorsten Reibel & Stefan Grosse

# Webinar “Valve Drive Controller and more”

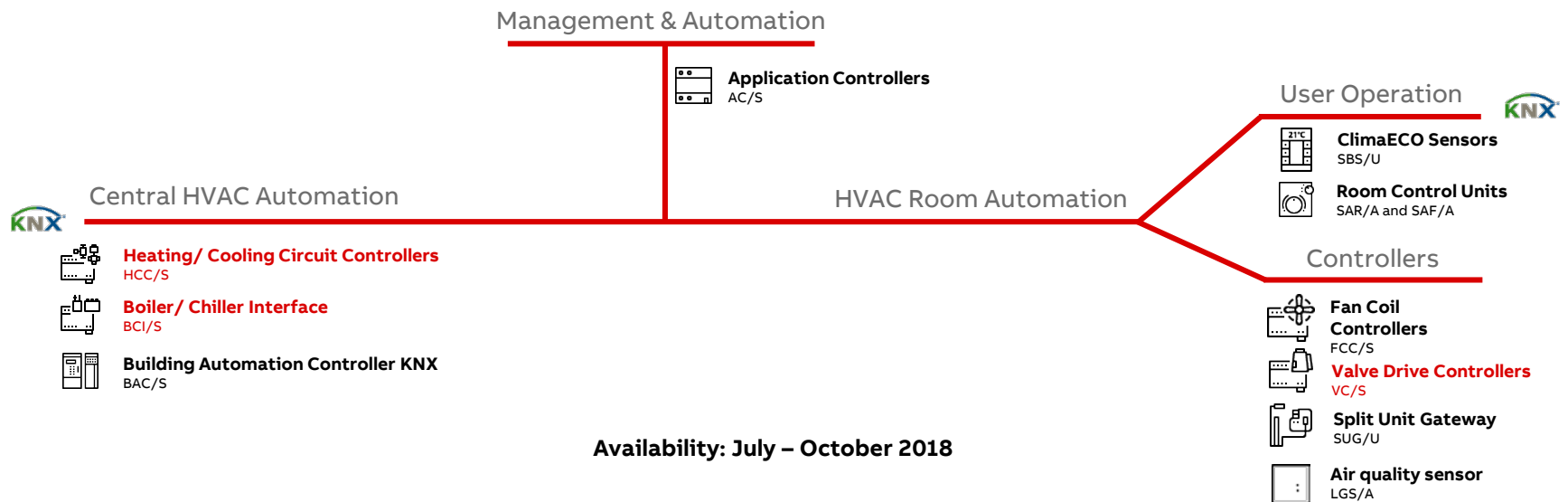
## Agenda

### ClimaECO – new Devices

- Valve Drive Controller VC/S
- Heating/Cooling Circuit Controller HCC/S
- Boiler/Chiller Interface BCI/S



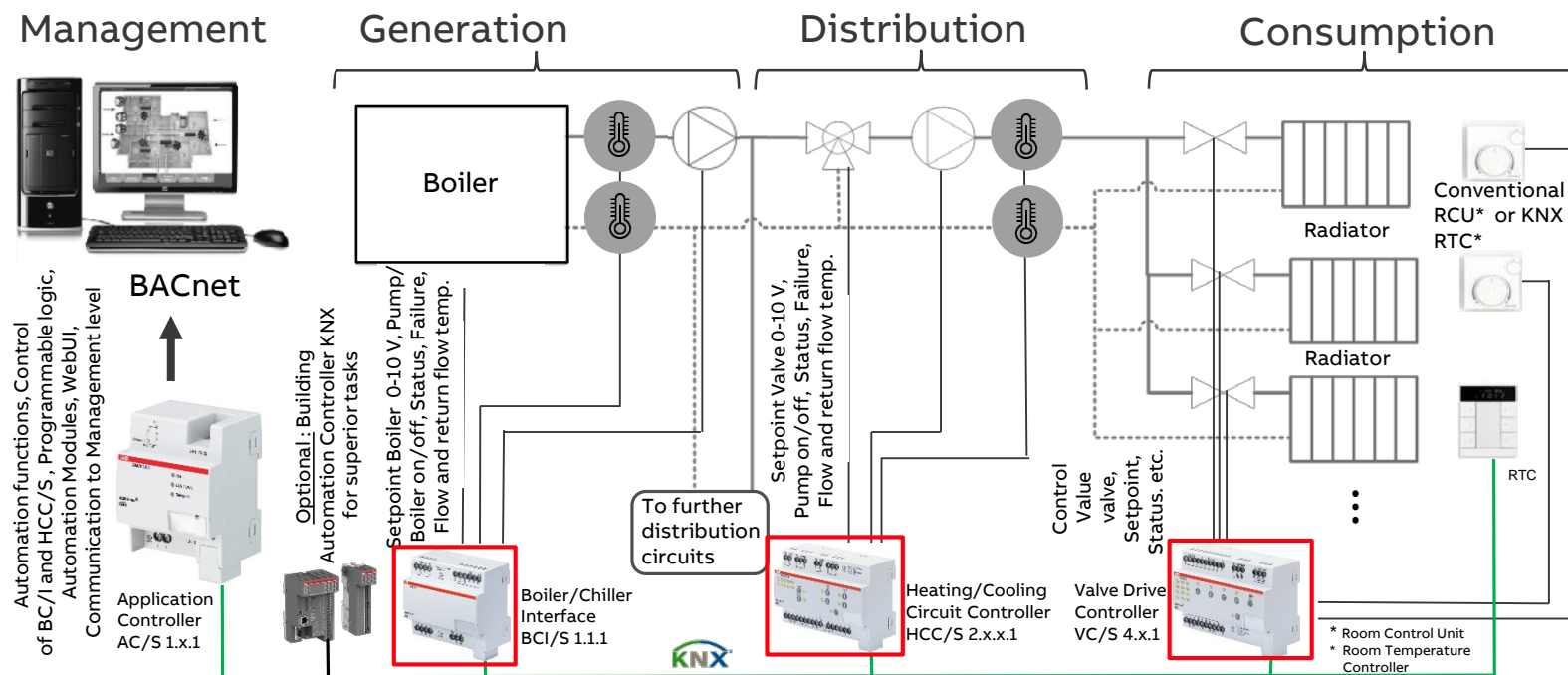
# Webinar “Valve Drive Controller and more”



A holistic HVAC Building Automation System, over 30 new devices

# Webinar “Valve Drive Controller and more”

## ClimaECO: ABB i-bus® KNX HVAC Solutions



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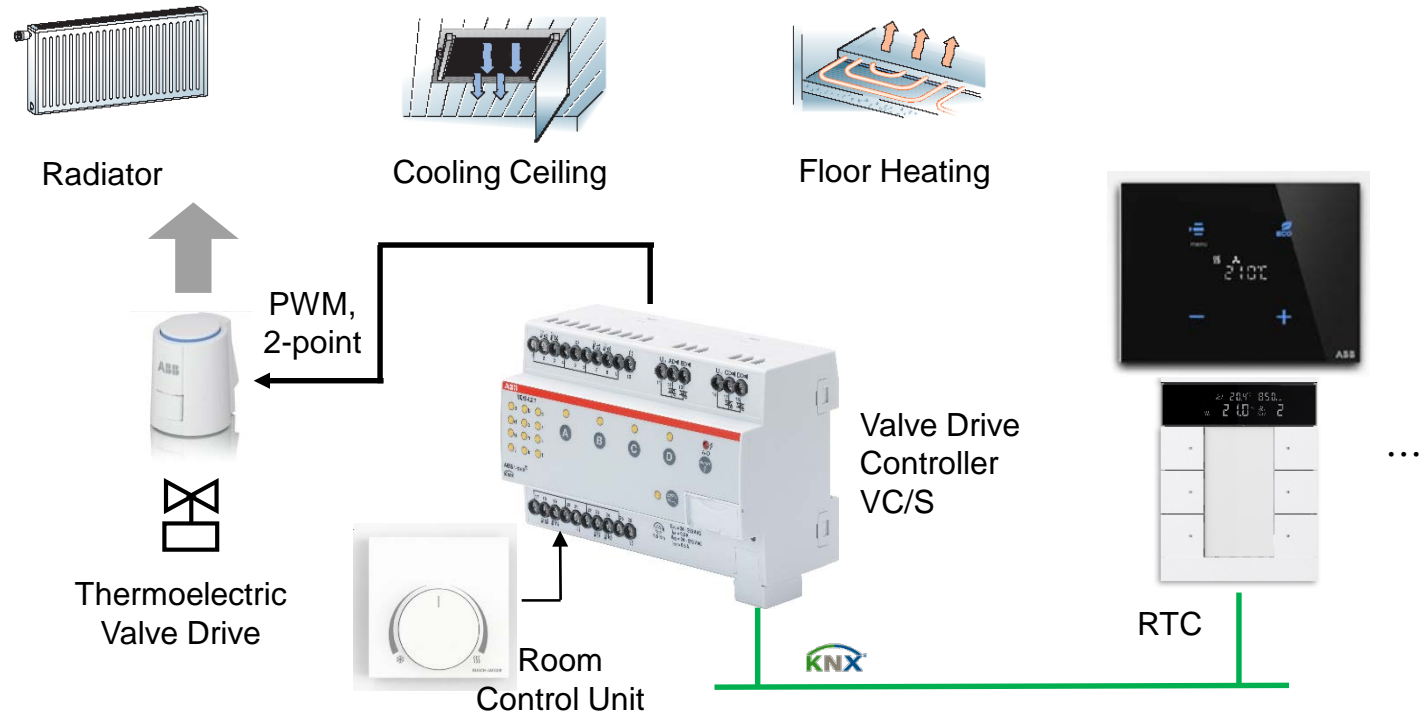
# Valve Drive Controller and more

Valve Drive Controller VC/S

# Webinar "Valve Drive Controller and more"

## Valve Drive Controller VC/S

### Applications Valve control



# Webinar "Valve Drive Controller and more"

## Valve Drive Controller VC/S

### Motivation – New Features

- Two devices for valve control
- With and without manual operation
- Four channels for electrothermal valve drives
- 12 inputs (binary and analogue, 3 each channel), for temperature measurement, dew point sensor, window contact, etc.
- Integrated room temperature controller for conventional Room Control Units (RCU)
- Parametrizable as actuator or controller/actuator
- ABB i-bus Tool support
- Existing valve actuators will be not replaced
- Please note: For connecting motor valve drives electronic actuator ES/S to be used



# Webinar "Valve Drive Controller and more"

## Valve Drive Controller VC/S

### ETS

- Function controller/actuator or only actuator adjustable
- Unified RTC with basic and additional stage heating/cooling
- Forced operation with defined valve position
- PWM or open/close signal
- Valve purge
- Temperature limitation via separate sensor, e.g. to protect a floor against over temperature
- Inputs for temperature sensor, window contact, dew point sensor, fill level sensor or binary contacts parametrizable



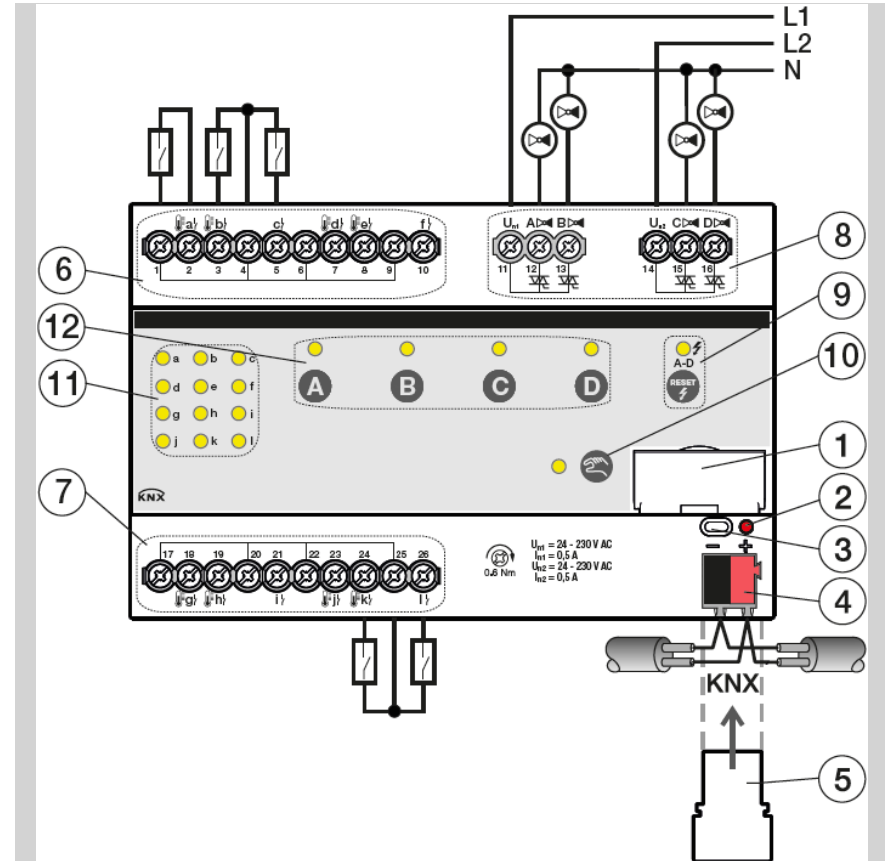


# Webinar "Valve Drive Controller and more"

## Valve Drive Controller VC/S

### VC/S 4.2.1

1. Label carrier
2. KNX programming button
3. KNX programming LED (red)
4. KNX connection
5. Cover cap
6. Inputs (a, b, c, d, e, f)
7. Inputs (g, h, i, j, k, l)
8. Valve output (A, B, C, D)
9. Button/LED Reset /Failure valve output (A...D)
10. Button/LED activate manual operation
11. LED status display inputs (a, b, c, d, e, f, g, h, i, j, k, l)
12. Button/LED switch/status display valve outputs



# Webinar "Valve Drive Controller and more"

## Valve Drive Controller VC/S

### Family VC/S 4.x.1 – Functional Overview

Function/Device	VC/S 4.1.1	VC/S 4.2.1
Integrated RTC	X	X
Number of channels	4	4
Type of valve control	PWM ON/OFF	PWM ON/OFF
Inputs for binary contacts per channel	3	3
Inputs for temperature per channel	2	2
Connection Room Control Unit (RCU)	1	1
Manual operation	-	X

# Webinar "Valve Drive Controller and more"

## Valve Drive Controller VC/S

### Technical Data

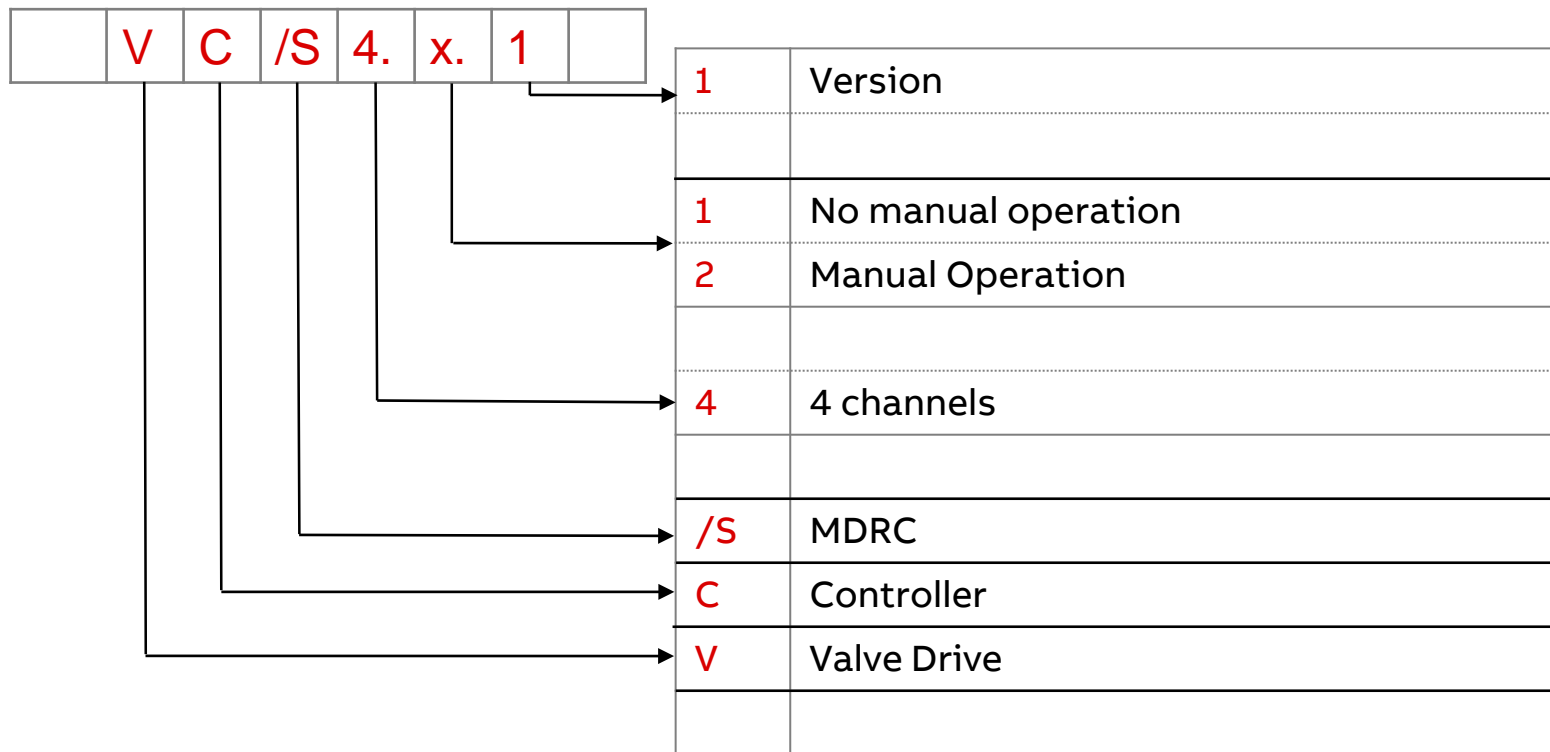
Feature	VC/S 4.x.1
Width	8 Modules
Valve Output	4
Nominal Current per channel	0,25 A
Inrush current	1,6 A for 10 s
Voltage	24 ... 230V AC
Binary Input	12
Scanning voltage	12V
Scanning current	1mA
Cable length	< 100m
Analogue Inputs (Temperature)	4
PT100, PT1000	2 wires
KT, KTY, NI, NTC,	Various resistances



# Webinar "Valve Drive Controller and more"

## Valve Drive Controller VC/S

### Type Description



# Webinar "Valve Drive Controller and more"

## Valve Drive Controller VC/S

### Family VC/S 4.x.1

- VC/S 4.2.1
  - 2CDG 110 217 R0011
  - List price: 520 Euro
  - Availability: September 2018
- 
- VC/S 4.1.1
  - 2CDG 110 216 R0011
  - List price: 380 Euro
  - Availability: September 2018



# Webinar "Valve Drive Controller and more"

## Valve Drive Controller VC/S

### Comparison VC/S – VAA/S and ES/S

- Integrated temperature controller
- Possibility to connect cost efficient Room Control Units SAR/A
- Integrated inputs
- Part of the ClimaECO solution
- ABB i-bus Tool support
- Valve Drive Actuator VAA/S to be used if more channels are required
- Electronic Switch Actuator ES/S to be used if connection of motor valve drives is required
- VAA/S and ES/S will be **not** phased out!



# Webinar "Valve Drive Controller and more"

## Valve Drive Controller VC/S

### VC/S linked with RCU

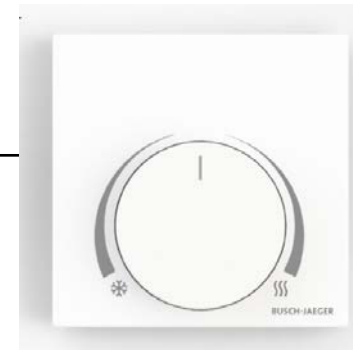
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VC/S 4.x.1  
Working as **Controller**



**Direct link**  
Set point and room temperature  
**One way communication**

SAR/A  
Room Control Unit (non KNX)



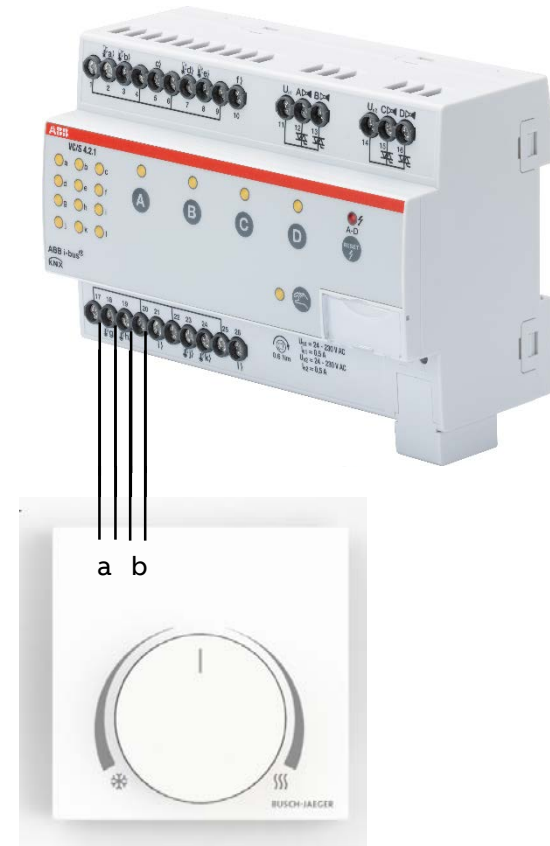
# Webinar "Valve Drive Controller and more"

## Valve Drive Controller VC/S

### Connection VC/S - RCU

4 wires required

- 2 wires for setpoint input a (mandatory)
  - Input in VC/S is parametrized as 'used as analogue RCU input'
- 2 wires for room temperature input b
  - optional, can come also from another sensor, e.g. presence detector
  - ETS parameter of input in VC/S to be adjusted as temperature sensor
  - Type of temperature sensor NTC, NTC type NTC20





# Webinar "Valve Drive Controller and more"

## Valve Drive Controller VC/S

### VC/S linked with KNX Room Temperature Controller (RTC)

VC/S 4.x.1  
Working as **Actuator**



KNX link

All option regarding communication  
**Two way communication**

ClimaECO sensor with RTC  
or any other RTC



...

# Webinar "Valve Drive Controller and more"

## Valve Drive Controller VC/S

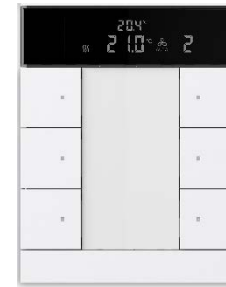
### VC/S linked with KNX Room Temperature Controller (RTC)

VC/S 4.x.1  
Working as **Controller**



**KNX link**  
All option regarding communication  
**Two way communication**

ClimaECO sensor 'RTC slave'



# Webinar "Valve Drive Controller and more"

## Valve Drive Controller VC/S

### VC/S linked with ClimaECO sensors with temperature sensor

VC/S 4.x.1

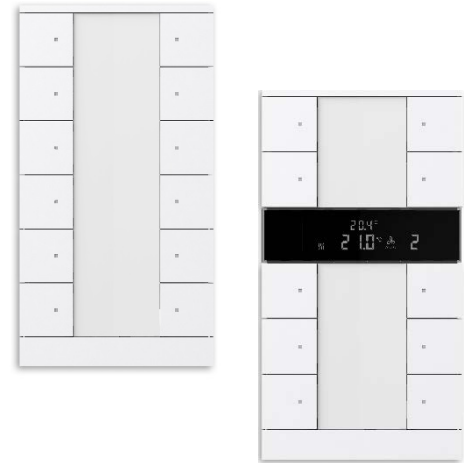
Working as **Controller**



KNX link

All option regarding communication  
**Two way communication**

ClimaECO sensor/RTC Slave

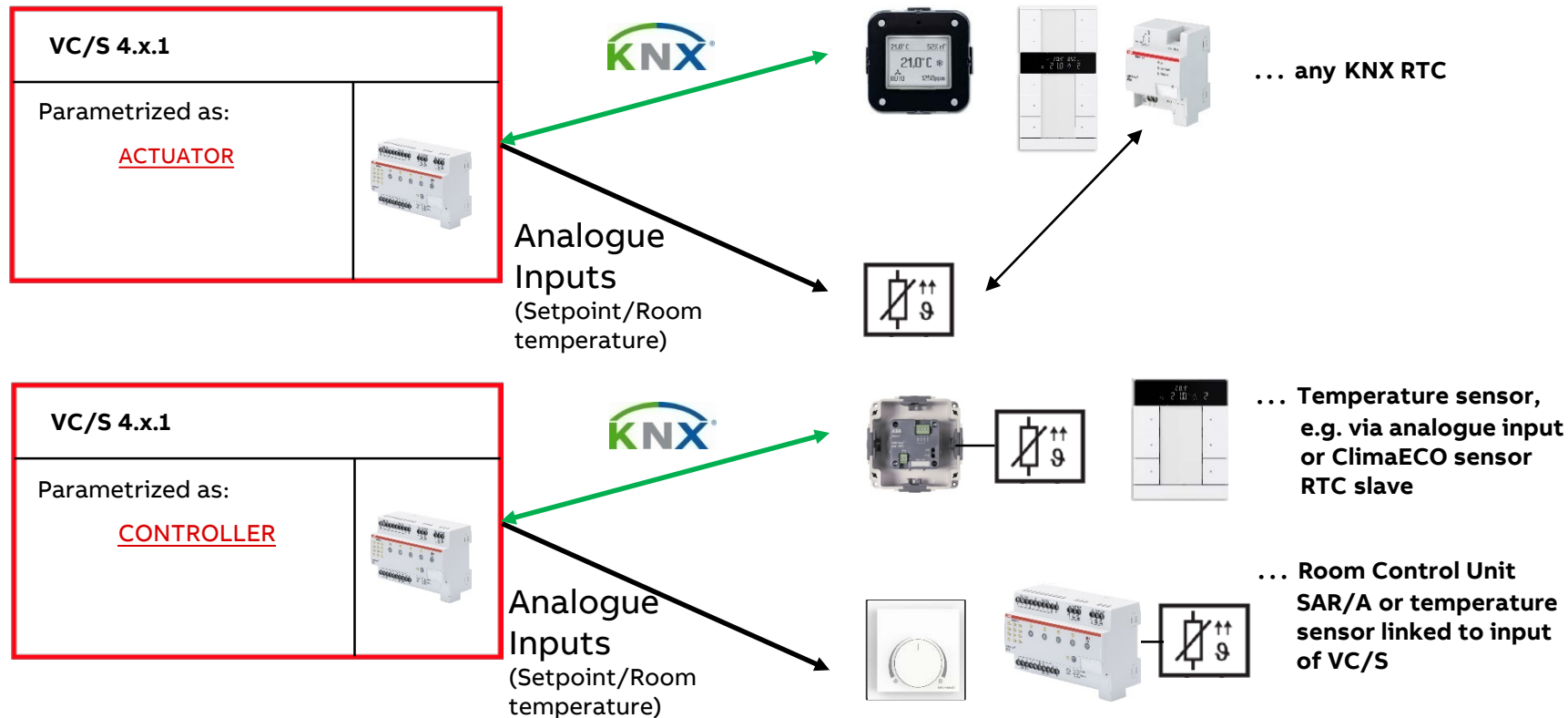


both with temperature sensor

# Webinar "Valve Drive Controller and more"

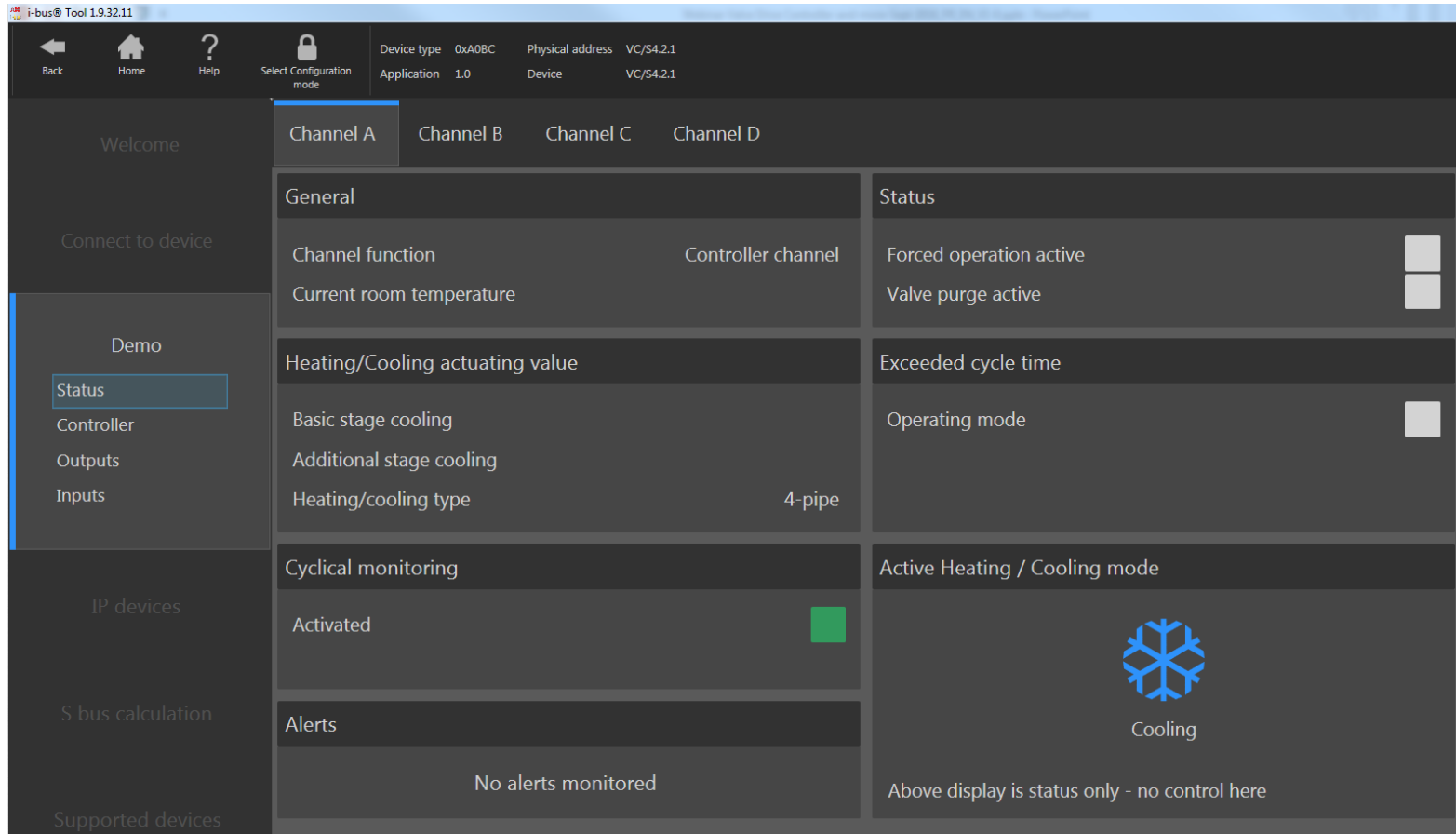
## Valve Drive Controller VC/S

### Assignment Controller - Actuator



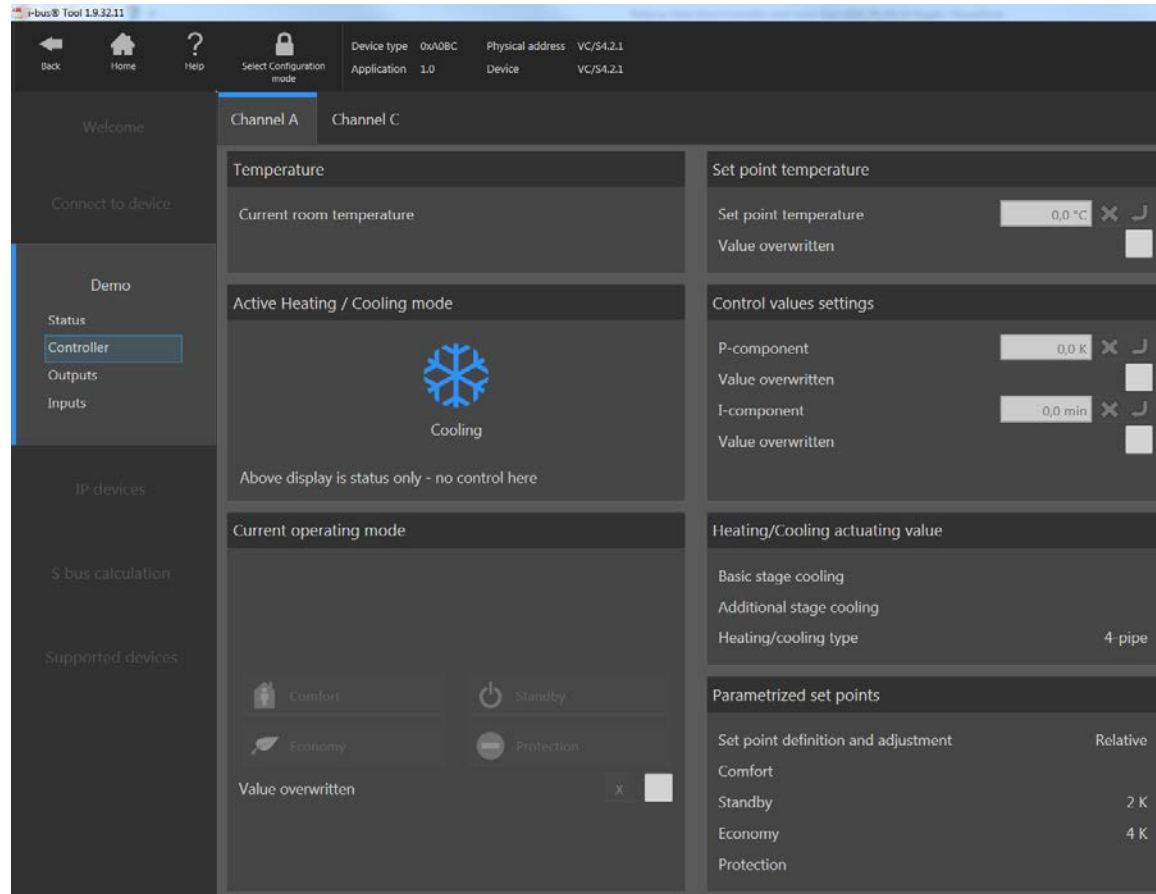
# Webinar "Valve Drive Controller and more"

## Valve Drive Controller VC/S - ABB i-bus tool



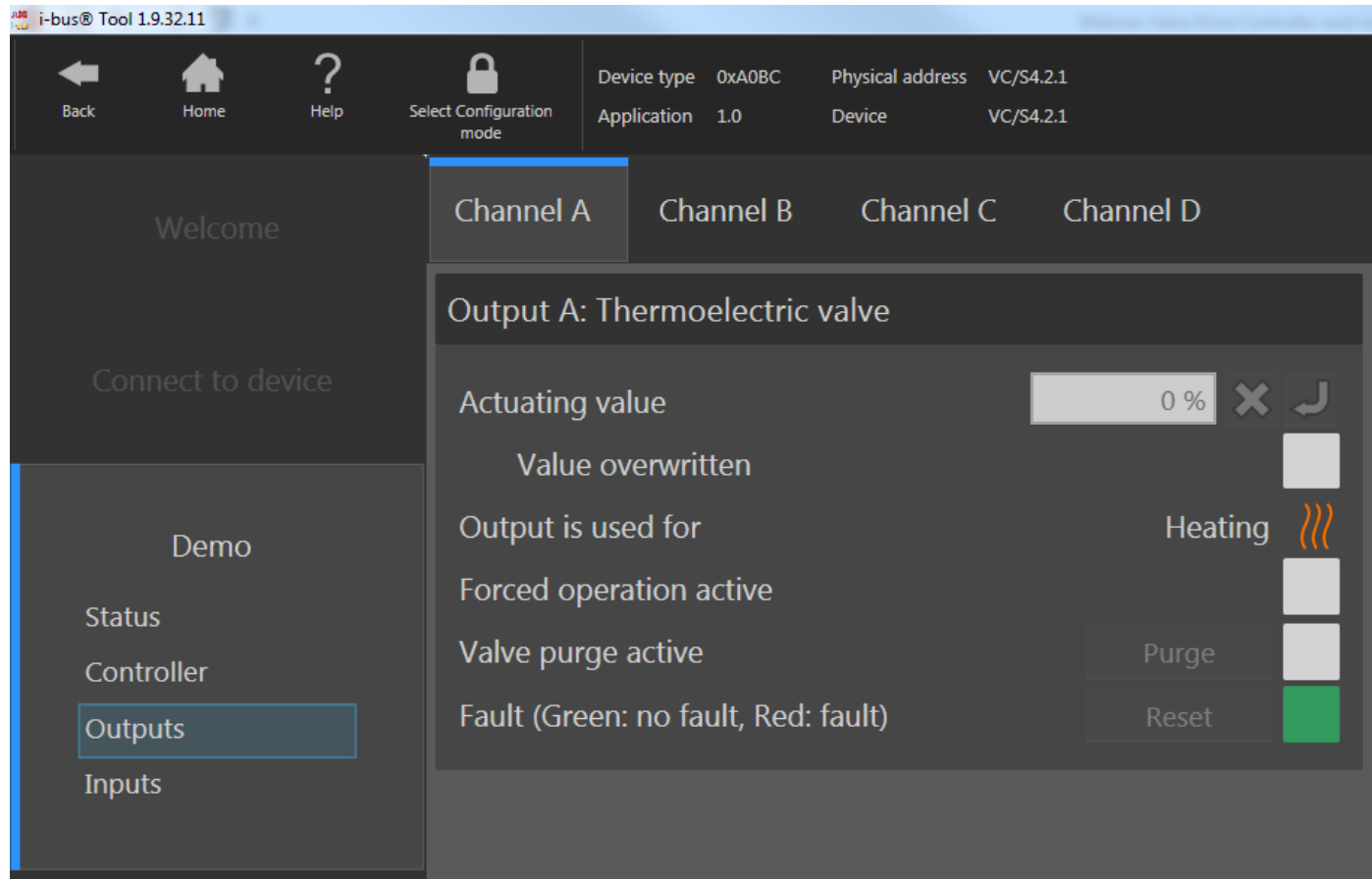
# Webinar "Valve Drive Controller and more"

## Valve Drive Controller VC/S - ABB i-bus tool



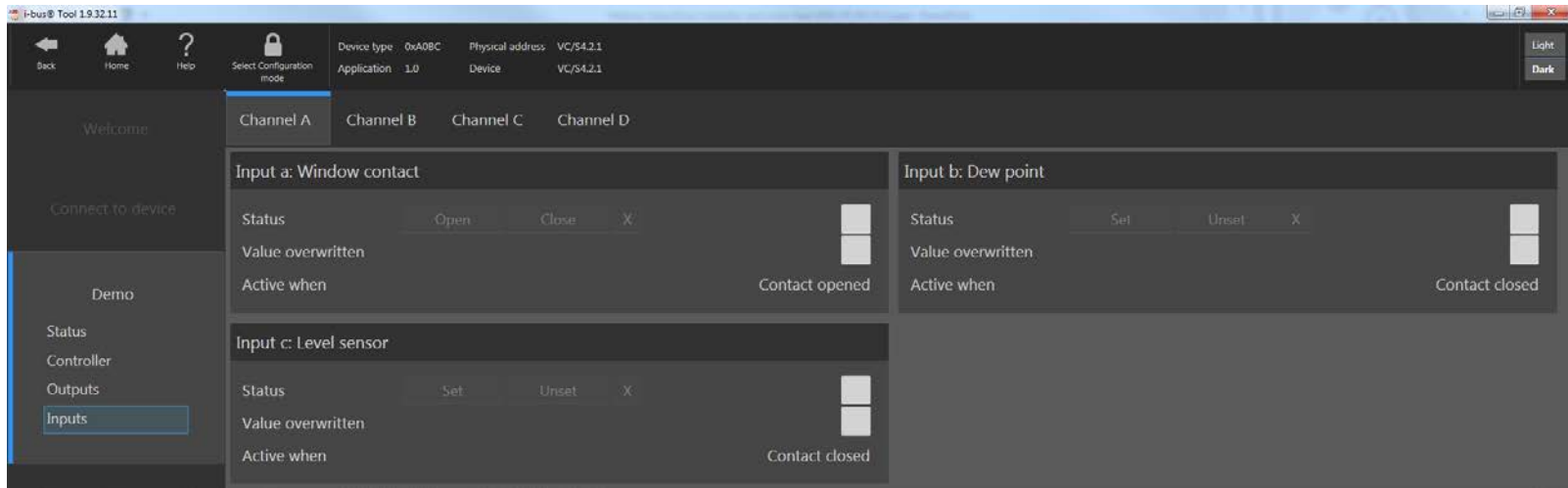
# Webinar "Valve Drive Controller and more"

## Valve Drive Controller VC/S - ABB i-bus tool



# Webinar "Valve Drive Controller and more"

## Valve Drive Controller VC/S - ABB i-bus tool





# Webinar "Valve Drive Controller and more"

## Valve Drive Controller VC/S

### Technical documents

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[www.abb.com/KNX](http://www.abb.com/KNX)

- Product category
  - Heating, Ventilation, Air Conditioning
  - VC/S
- Product Manual
- Technical datasheet
- Installation and operating instructions
- Specification Text
- ETS Application
- Application Note
- CE declaration of conformity
- ...

Coming soon ...

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# Valve Drive Controller and more

Heating/Cooling Circuit Controller HCC/S

# Webinar "Valve Drive Controller and more"

## Heating/Cooling Circuit Controller HCC/S

### Why Heating Cooling Circuits in a Heating/Cooling System?

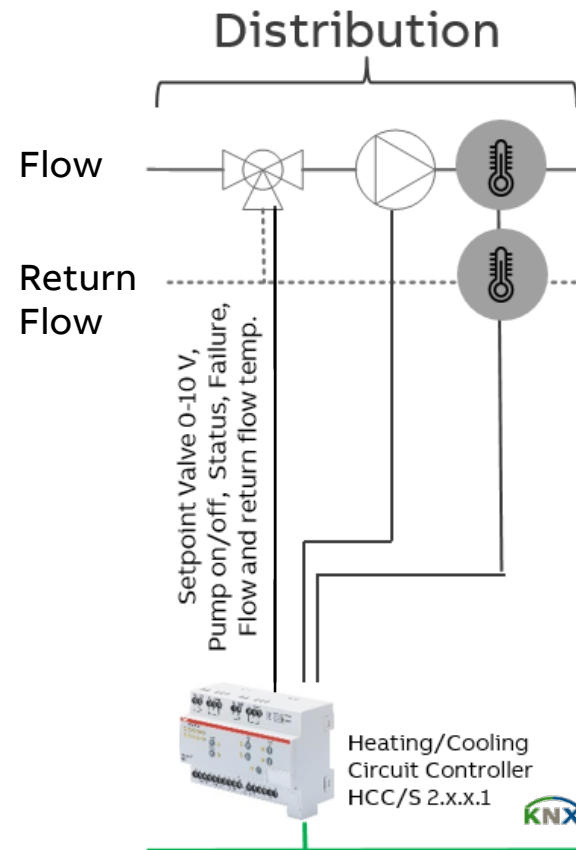
In a heating/cooling system the hot/cold water has to be distributed to various units in a building

Units can be separate flats in a residential building, individual departments/shops in a commercial building, particular circuits for radiator or floor heating/cooling ceiling and more

Requirements of these units: Individual consumption and measurement, different water temperature and pressure or pipes, turn off of the circuit (pump off and valve closed) and more

A Heating Cooling circuit Controller together with the valve, pump and temperature sensors can handle these requirements

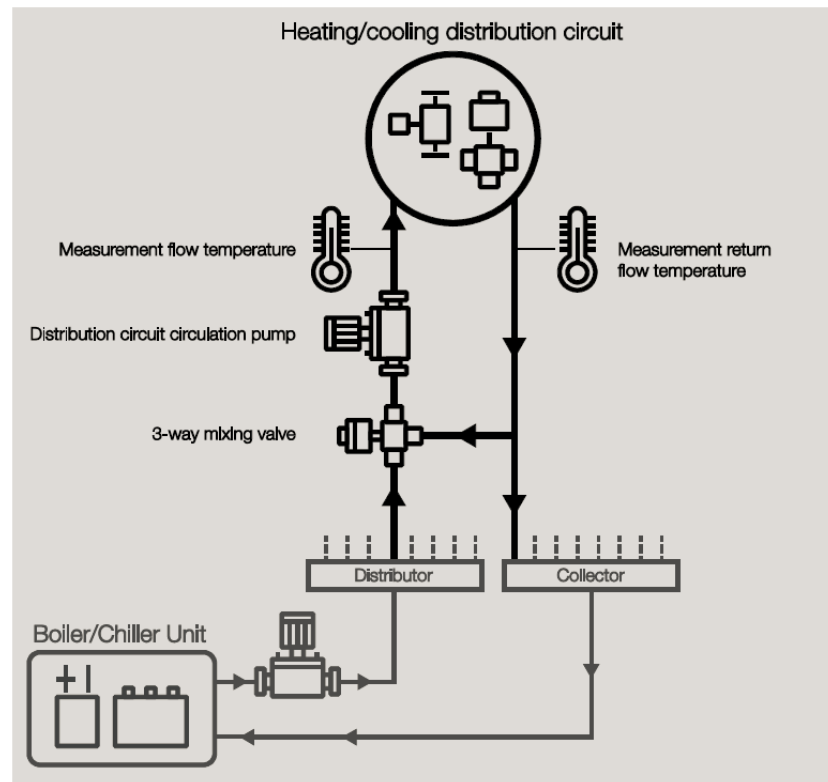
→ For a holistic and energy efficient approach HCC/S 2.x.x.1 from ABB based on KNX



# Webinar "Valve Drive Controller and more"

## Heating/Cooling Circuit Controller HCC/S

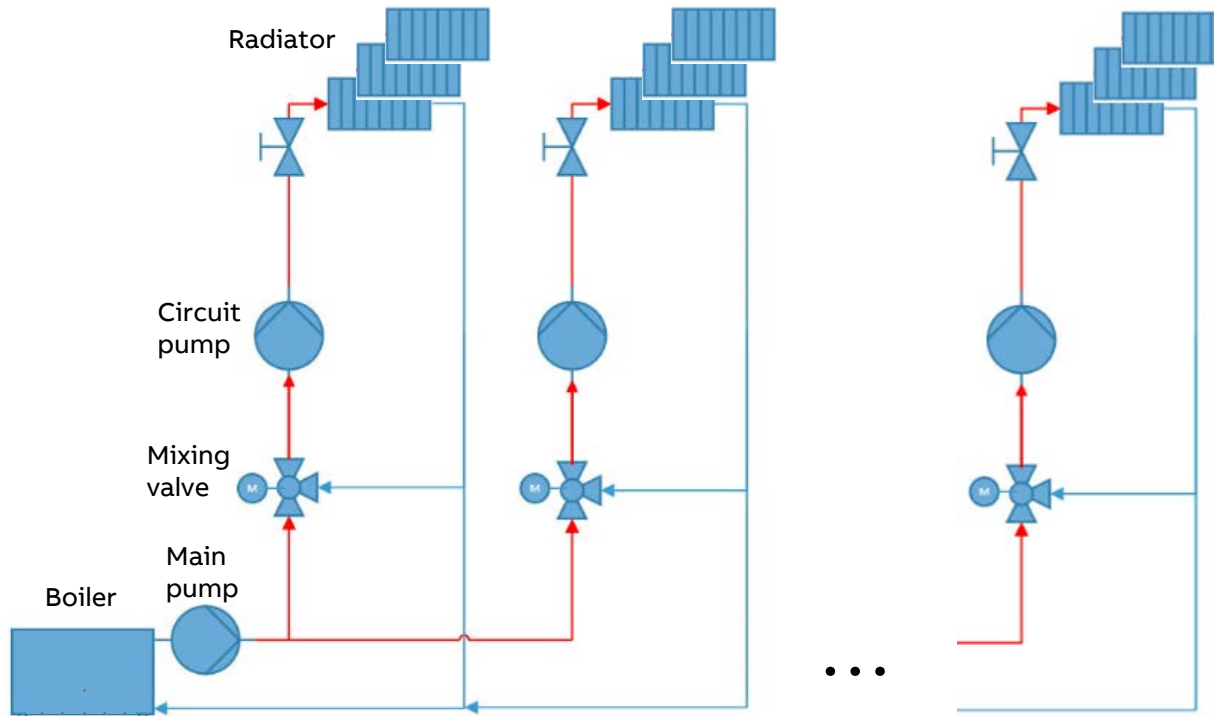
### Principle Heating/Cooling Circuit



# Webinar "Valve Drive Controller and more"

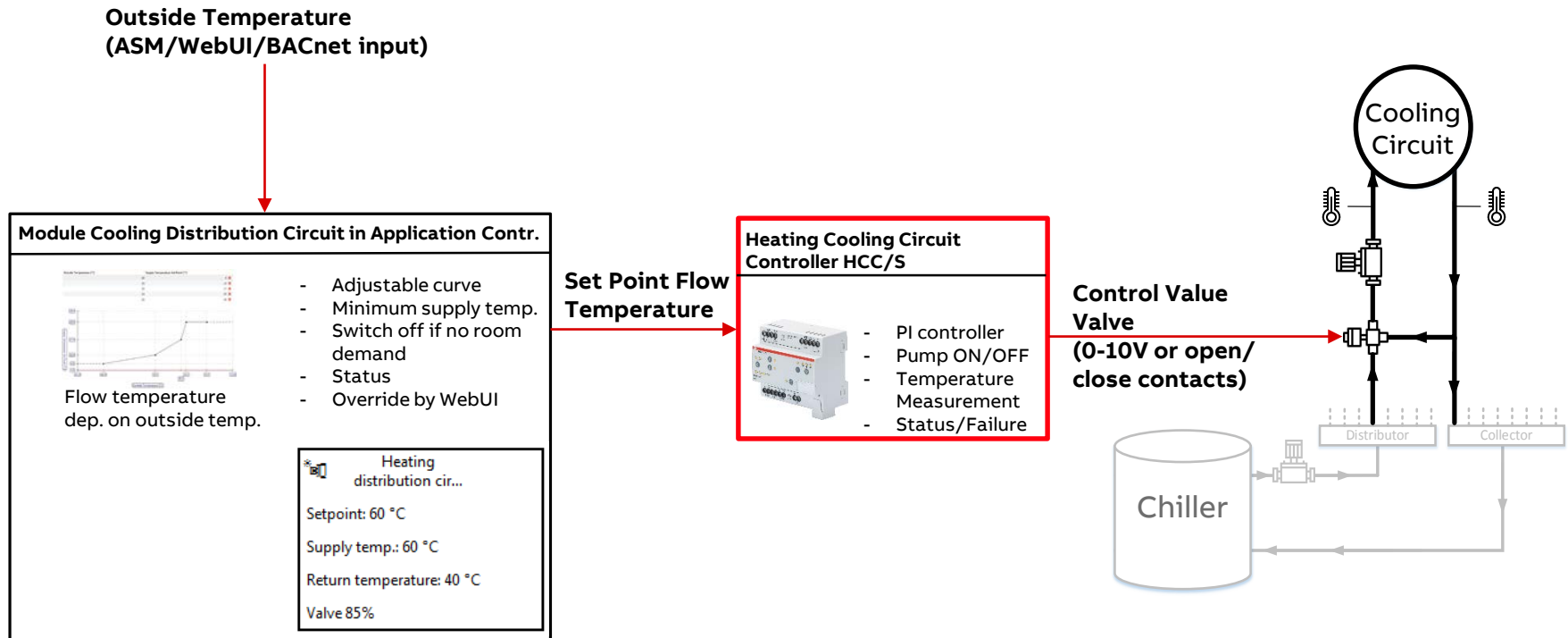
## Heating/Cooling Circuit Controller HCC/S

### Example: Heating System with Heating Circuits



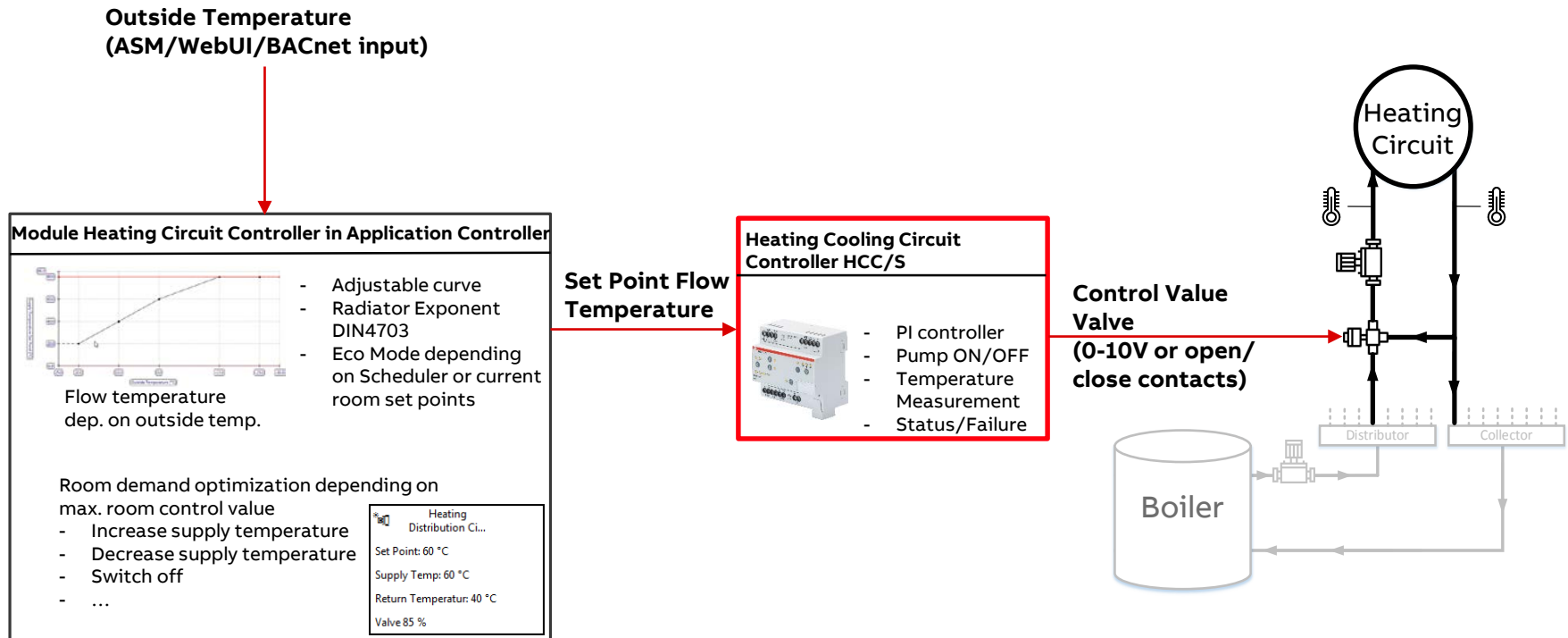
# Webinar "Valve Drive Controller and more"

## Heating/Cooling Circuit Controller HCC/S (Chiller Control)



# Webinar "Valve Drive Controller and more"

## Heating/Cooling Circuit Controller HCC/S (Boiler Control)



# Webinar "Valve Drive Controller and more"

## Heating/Cooling Circuit Controller HCC/S

### Motivation – Features

- Control of Heating/Cooling Circuits **NEW**
- Expansion of ABB i-bus KNX to the Automation level
- Expansion of ABB i-bus KNX to the Distribution level
- Necessary for for a holistic approach of a HVAC solution completely with ABB i-bus KNX (Automation- and Distribution level)
- Control of 3-way valves for 0 - 10 V motor
- Control of 3-way valves for 3 point motor
- Control of pump of the heating cooling circuit
- Control of pump depending on control value
- Measurement of flow- and return flow temperature via analogue inputs





# Webinar "Valve Drive Controller and more"

## Heating/Cooling Circuit Controller HCC/S

### Motivation – Features

- 3 binary inputs each channel for status messages pump or other functions
- Integrated PI-controller
- Controller or actuator
- Forced operation
- With or without manual operation
- Two independent channels in one HCC/S:
  - two heating/cooling circuits
  - One heating/cooling circuit with double pump mode (Redundancy)
- 4 devices with/without manual operation and for 0-10V/3-point mixing valve drives
- ABB i-bus Tool support



# Webinar "Valve Drive Controller and more"

## Heating/Cooling Circuit Controller HCC/S

### ETS features

- Function controller or actuator adjustable
- Programmable PI-controller for mixing valve
- Adjustable temp. accuracy and valve movem.
- Forced operation (valve position/pump status)
- Valve purge
- Control of pump depending on control value, e.g. pump off when control value below 5 %
- Run-on time for pump
- Close valve when pump shut down
- Double pump with dedicated parameters
- Inputs for pump status or free use
- Safety shut down, e.g. to limit the temperature of a floor
- Valve signal 0-10V, 1-10V, 2-10V, 10-0V



# Webinar "Valve Drive Controller and more"

## Heating/Cooling Circuit Controller HCC/S

### Family HCC/S 2.x.x.1



HCC/S 2.1.1.1

- 2 Channels
- 0-10 V valve drives
- 2 temp. inputs/ch.
- 3 binary inputs/ch.
- No manual operation



HCC/S 2.1.2.1

- 2 Channels
- 0-10 V valve drives
- 2 temp. inputs/ch.
- 3 binary inputs/ch.
- Manual operation



HCC/S 2.2.1.1

- 2 Channels
- Motor valve drives
- 2 temp. inputs/ch.
- 3 binary inputs/ch.
- No manual operation



HCC/S 2.2.2.1

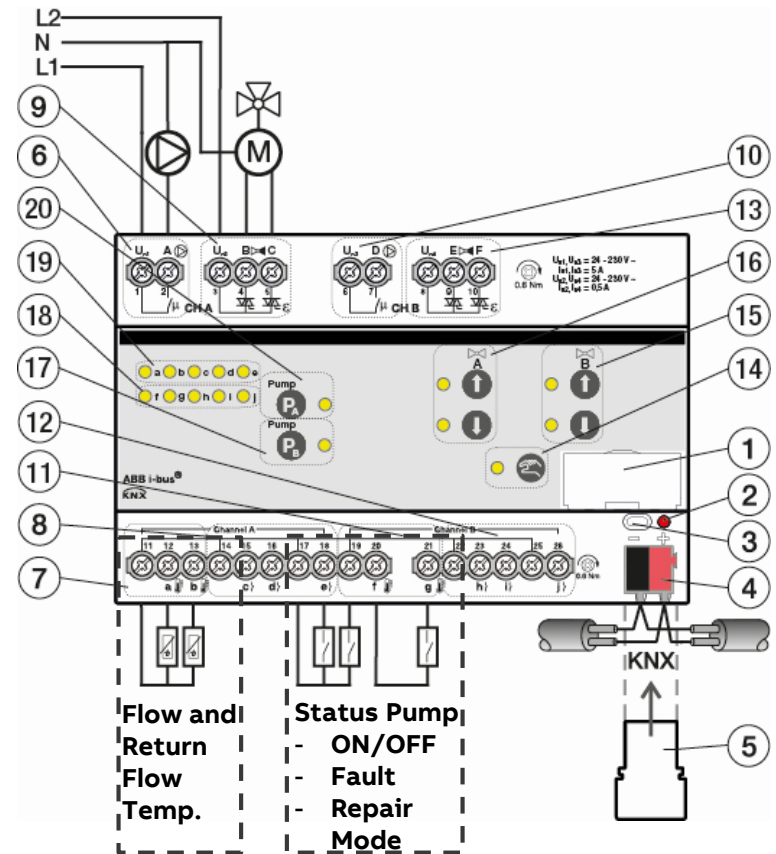
- 2 Channels
- Motor valve drives
- 2 temp. inputs/ch.
- 3 binary inputs/ch.
- Manual operation

# Webinar "Valve Drive Controller and more"

## Heating/Cooling Circuit Controller HCC/S

### HCC/S 2.2.x.1 (Motor Valve Drive)

1. Label carrier
2. KNX programming button
3. KNX programming LED (red)
4. KNX connection
5. Cover cap
6. Relais output (Pump) channel A
7. Temperature inputs channel A
8. Binary inputs (Pump) channel A
9. Valve output channel A
10. Relais output (Pump) channel B
11. Temperature inputs channel B
12. Binary inputs (Pump) channel B
13. Valve Output channel B
14. - 20. Manual operation

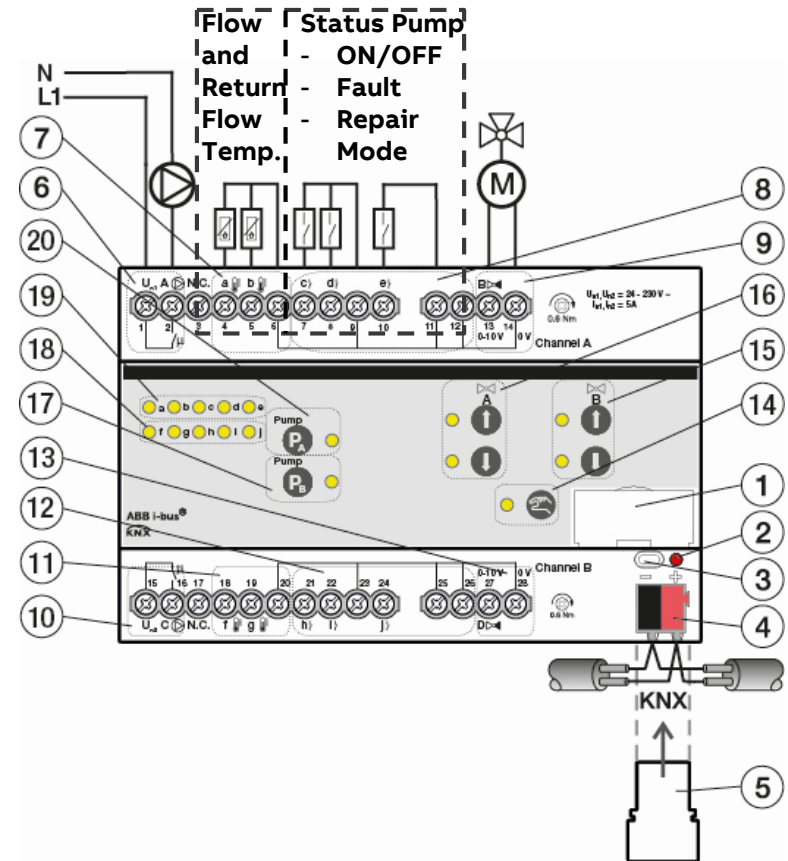


# Webinar "Valve Drive Controller and more"

## Heating/Cooling Circuit Controller HCC/S

### HCC/S 2.1.x.1 (0-10 V Valve Drive)

1. Label carrier
2. KNX programming button
3. KNX programming LED (red)
4. KNX connection
5. Cover cap
6. Relais output (Pump) channel A
7. Temperature inputs channel A
8. Binary inputs (Pump) channel A
9. Valve output channel A
10. Relais output (Pump) channel B
11. Temperature inputs channel B
12. Binary inputs (Pump) channel B
13. Valve Output channel B
14. - 20. Manual operation



# Webinar "Valve Drive Controller and more"

## Heating/Cooling Circuit Controller HCC/S

### Family HCC/S 2.x.x.1 – Functional Overview

Function/device	HCC/S 2.1.1.1	HCC/S 2.1.2.1	HCC/S 2.2.1.1	HCC/S 2.2.2.1
Integrated temperature controller for heating or cooling mixing circuits	x	x	x	x
Number of channels	2	2	2	2
Type of valve actuation	0-10 V	0-10 V	3-point (motor-driven)	3-point (motor-driven)
Inputs for sensors per channel	5	5	5	5
Inputs for temperature measurement	2	2	2	2
Inputs for pump status	3	3	3	3
Pump output per channel Relay (5 A)	1	1	1	1
Manual operation	-	x	-	x

## Heating/Cooling Circuit Controller HCC/S

## Technical Data

Feature	HCC/S 2.x.x.1
Width	6 Modules
Valve Output (Motor, 3point)	2
Nominal Current per channel	0,25 A
Inrush current	1,6 A for 10 s
Voltage	24 ... 230V AC
Valve Output (0-10V DC)	2
Load	> 10 kOhm
Current (limited)	< 1,5 mA
Output Pump	2
Current (resistive load)	5 A
Binary Input	6
Scanning voltage	12V
Scanning current	1mA
Cable length	< 100m
Analogue Inputs (Temperature)	4
PT100, PT1000	2 wires
KT, KTY, NI, NTC,	Various resistances



# Webinar "Valve Drive Controller and more"

## Heating/Cooling Circuit Controller HCC/S

### Type Description

H	C	C	/S	2.	x.	x.	1	1	Without manual operation
								2	With manual operation
								1	0-10 V motor valve drive
								2	3-point motor valve drive
								/S	MDRC
								C	Controller
								C	Cooling
								H	Heating



# Webinar "Valve Drive Controller and more"

## Heating/Cooling Circuit Controller HCC/S

### Family HCC/S 2.x.x.2



HCC/S 2.1.1.1

- 2CDG 110 218 R0011
- List price: 480 Euro
- available



HCC/S 2.1.2.1

- 2CDG 110 219 R0011
- List price: 580 Euro
- available



HCC/S 2.2.1.1

- 2CDG 110 220 R0011
- List price: 480 Euro
- available



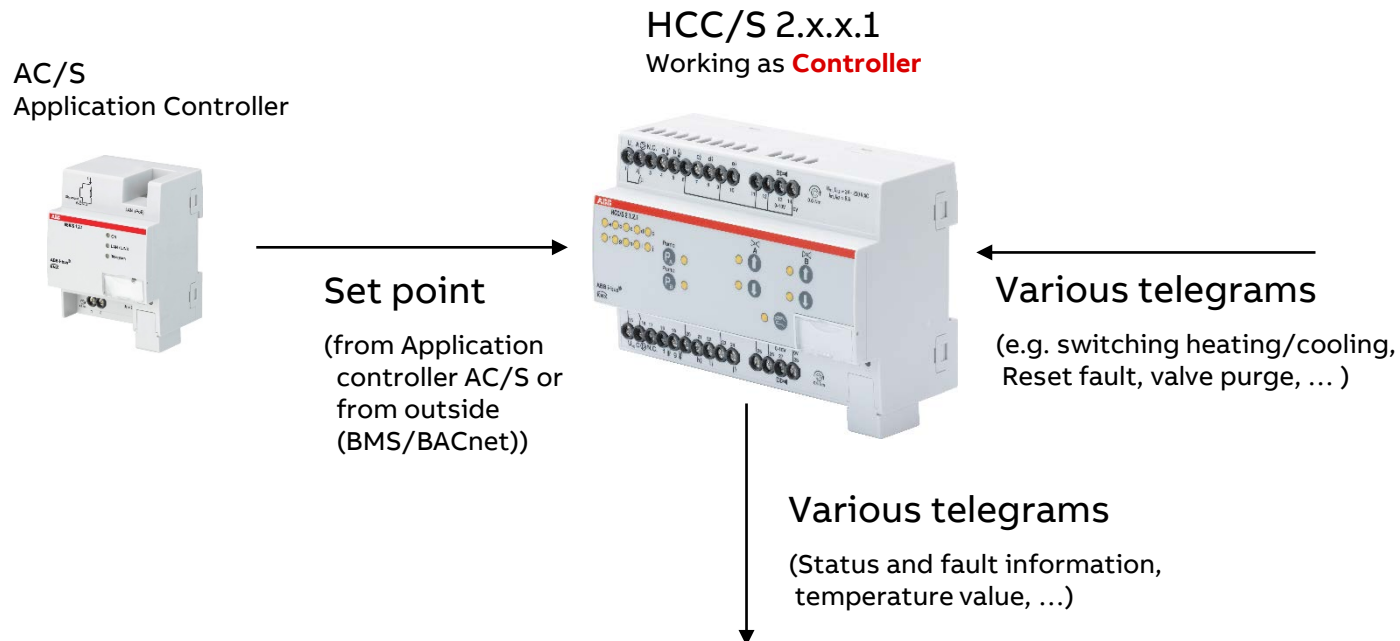
HCC/S 2.2.2.1

- 2CDG 110 221 R0011
- List price: 580 Euro
- available

# Webinar "Valve Drive Controller and more"

## Heating/Cooling Circuit Controller HCC/S

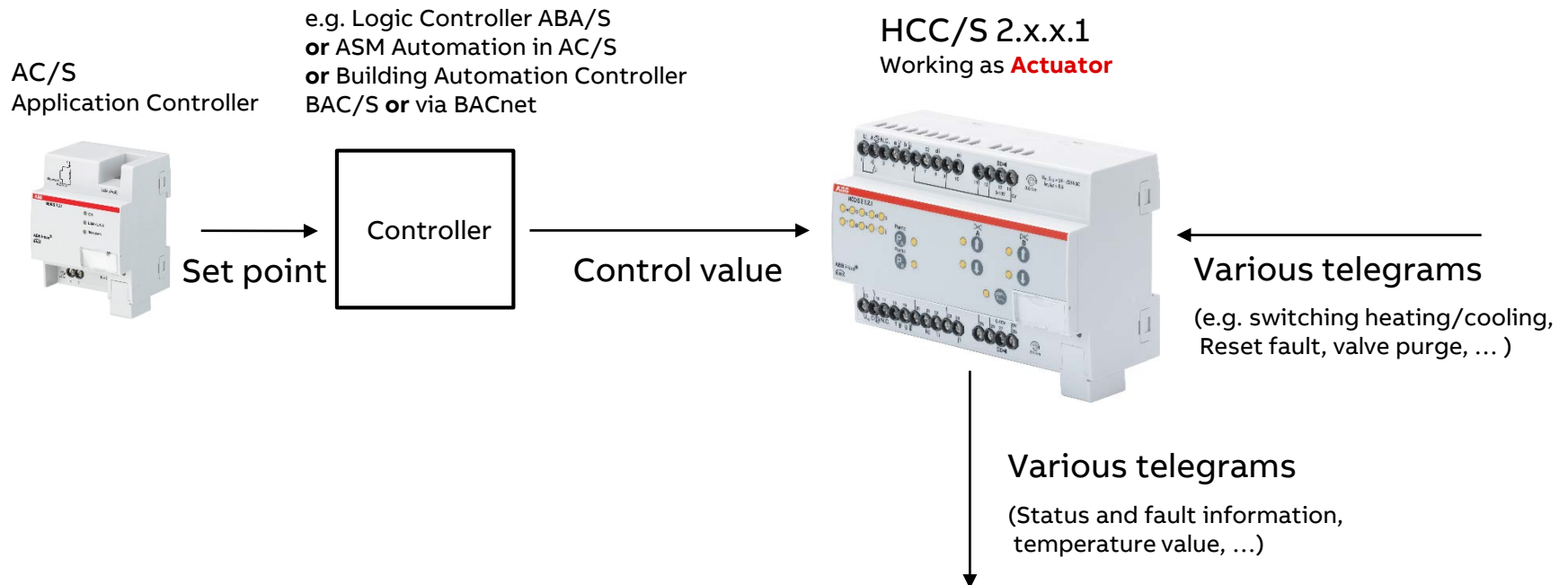
### HCC/S linked in KNX with ...



# Webinar "Valve Drive Controller and more"

## Heating/Cooling Circuit Controller HCC/S

### HCC/S linked in KNX with ...



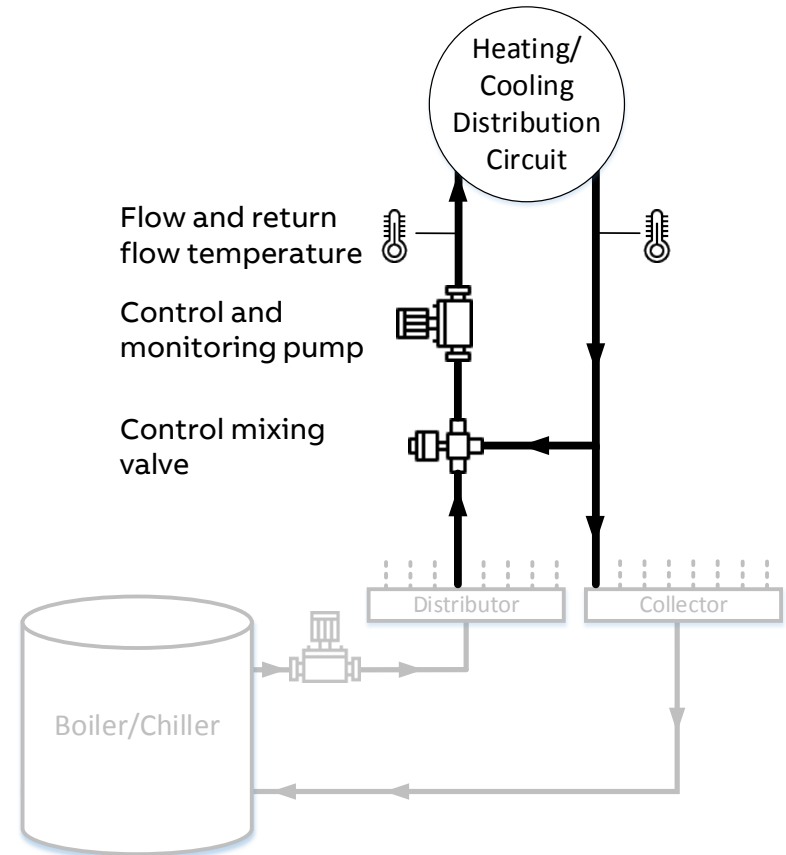
# Webinar "Valve Drive Controller and more"

## Heating/Cooling Circuit Controller HCC/S

### Single pump

One pump per Heating/Cooling Circuit (standard)

- Operation via relay contact in HCC/S
- If available from the pump, connected via binary input of HCC/S:
  - Pump running (Status pump)
  - Pump fault
  - Repair switch pump (pump manually switched)
- ETS parameter: pump running depending on control value threshold, follow up time, closing valve when pump off



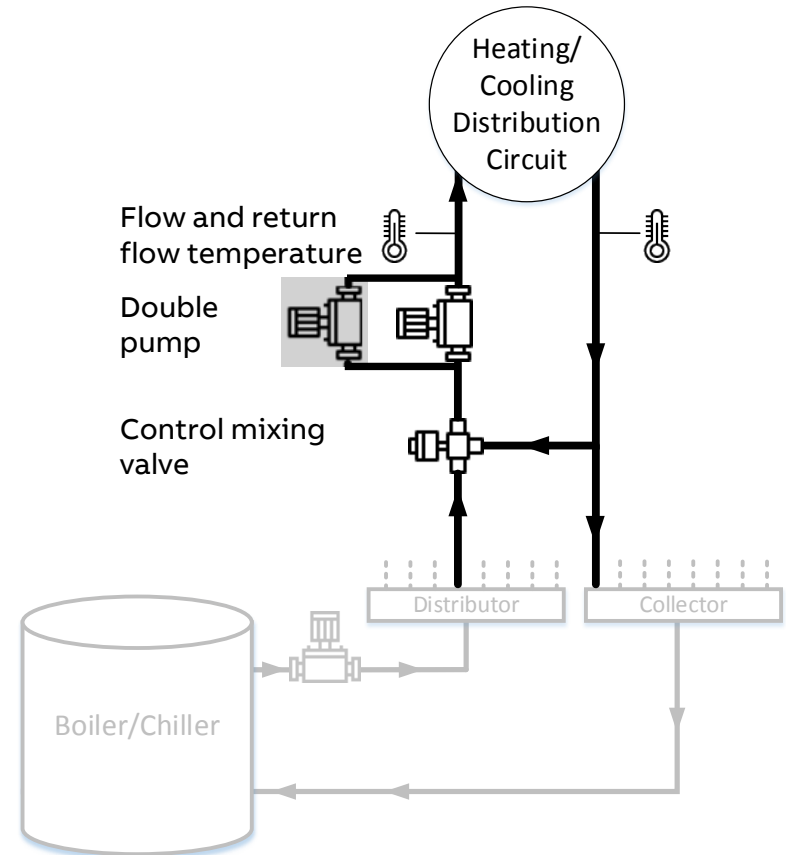
# Webinar "Valve Drive Controller and more"

## Heating/Cooling Circuit Controller HCC/S

### Double pump

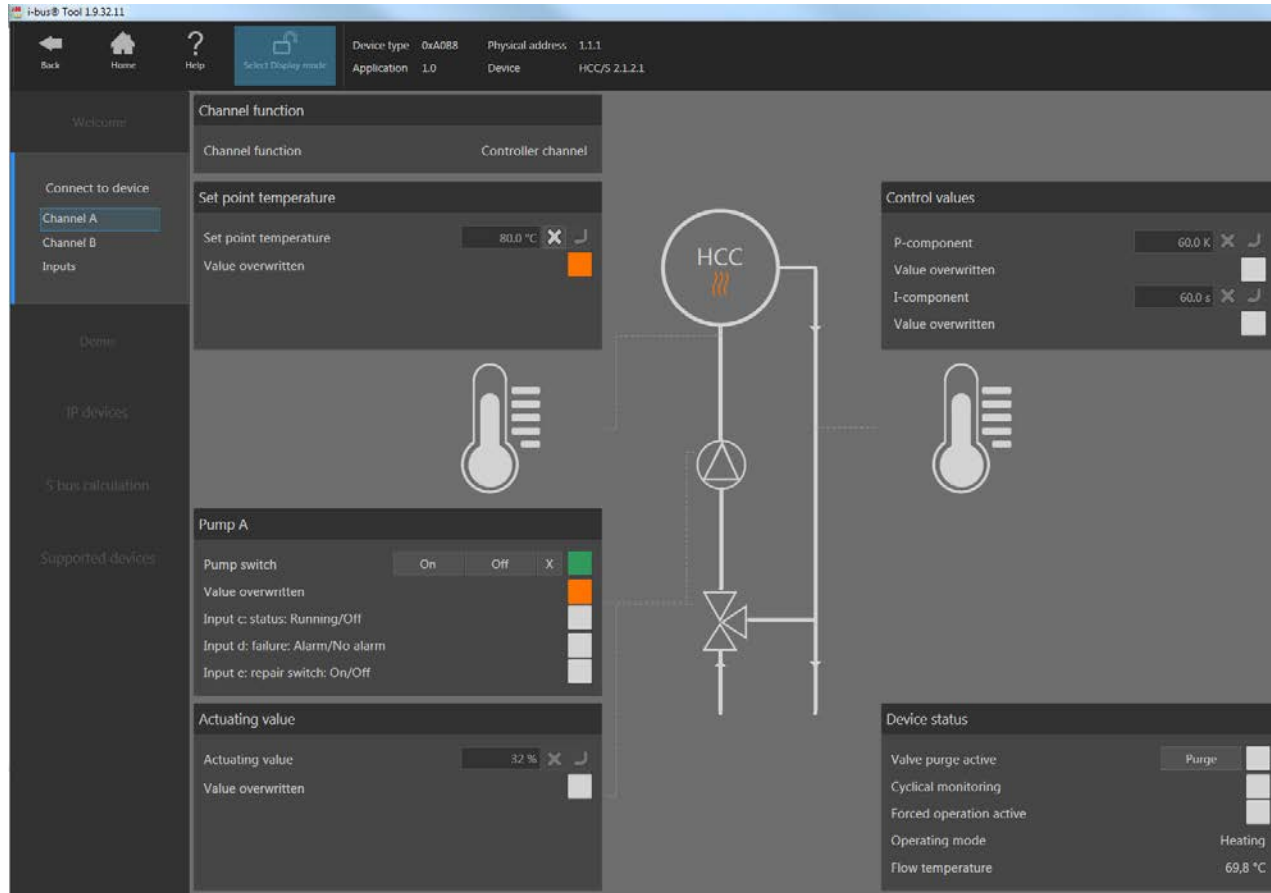
Two pumps per Heating/Cooling Circuit (Redundancy)

- Operation via relay contacts in HCC/S
- Channel 1 main pump, channel 2 backup pump or vice versa
- Change of running pump in case of failure takes place automatically
- Weekly change between both pumps possible
- Manual change via telegram anytime possible
- **In case of double pump:**
  - Channel 2 only inputs and relay
  - Only one controller, only one heating/cooling circuit left



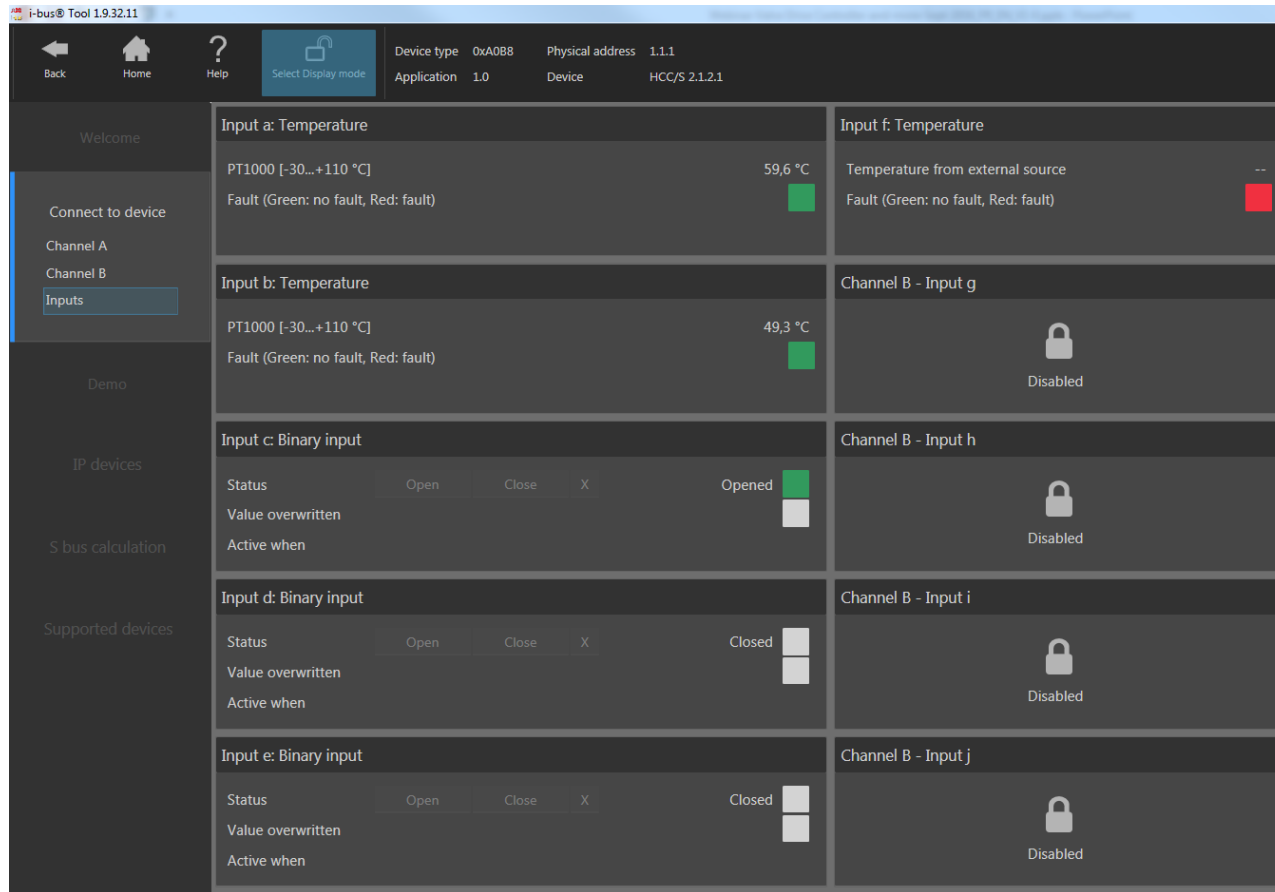
# Webinar "Valve Drive Controller and more"

## Heating/Cooling Circuit Controller HCC/S - ABB i-bus Tool



# Webinar "Valve Drive Controller and more"

## Heating/Cooling Circuit Controller HCC/S - ABB i-bus Tool



# Webinar "Valve Drive Controller and more"

## Heating/Cooling Circuit Controller HCC/S

### Technical documents

[www.abb.com/KNX](http://www.abb.com/KNX)

→ Product category

→ Heating, Ventilation, Air Conditioning

→ HCC/S

- Product Manual
- Technical datasheet
- Installation and operating instructions
- Specification Text
- ETS Application
- Application Note
- CE declaration of conformity
- . . .

The screenshot displays the ABB product page for the HCC/S2.2.1.1. The page is titled "Detailed information for: HCC/S2.2.1.1" and includes a navigation bar with "Data Sheet" and "Documentation" tabs. The "Data Sheet" tab is active, showing general information such as the product type (HCC/S2.2.1.1), product ID (2CDG110220R0011), EAN (4016779011631), and catalog description (HCC/S2.2.1.1 Heat/CoolCircCtrl3-P.2f). A long description is also provided, detailing the device's function in controlling heating or cooling circuits. To the right of the text is a 3D image of the device. Below the main content, there is a section titled "Show all" which lists various documents available for download, including application notes, brochures, data sheets, declarations of conformity, manuals, movies, and operating instructions. Each document entry includes a thumbnail, title, language, and a PDF icon.

Document Type	Document Title	Language	Summary	File Size	Format
Declaration of conformity	Declaration of conformity	German, English, Spanish, French, Italian, Dutch, Polish	Summary: No summary available	0,13 MB	PDF
ETS Application	ETS Application (knxprod)	German, English, Spanish, French, Italian, Dutch, Polish	Summary: Version 1.0	0,53 MB	PDF
Installation and Operating Instructions	Installation and Operating Instructions (PDF)	German, English, Spanish, French, Italian, Dutch, Polish	Summary: No summary available	0,82 MB	PDF
Product manual	Product manual (PDF)	German, English, Spanish, French, Italian, Dutch, Polish	Summary: No summary available		PDF



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# Valve Drive Controller and more

Boiler/Chiller Interface BCI/S

# Webinar "Valve Drive Controller and more"

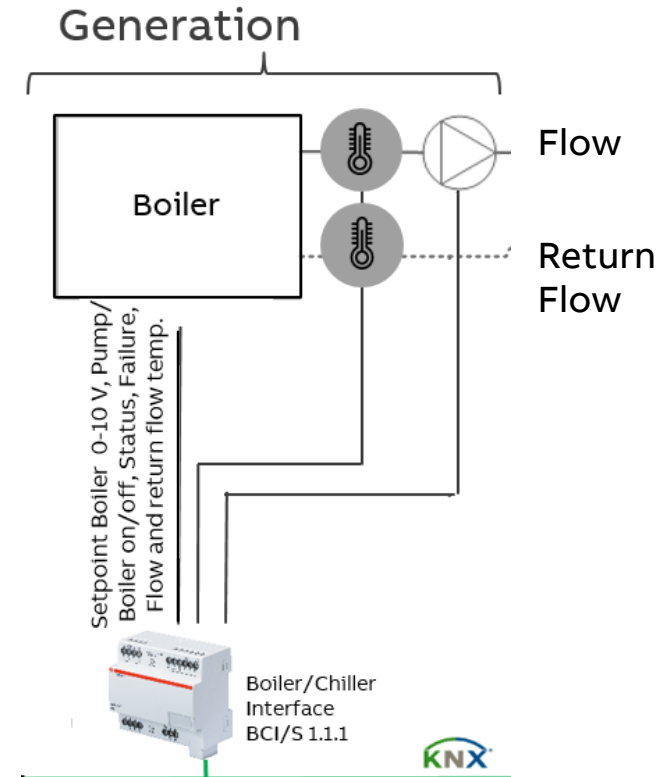
## Boiler/Chiller Interface BCI/S

### Why Boiler/Chiller Control in a Heating/Cooling System?

In a heating/cooling system hot/cold water has to be generated with the right amount and temperature to be distributed to various circuits/units in a building.

A boiler or chiller produces the tempered water but has to be controlled depending on the demand of the total heating/cooling system

→ For a holistic and energy efficient approach  
Boiler Chiller Interface BCI/S 1.1.1 from ABB  
based on KNX



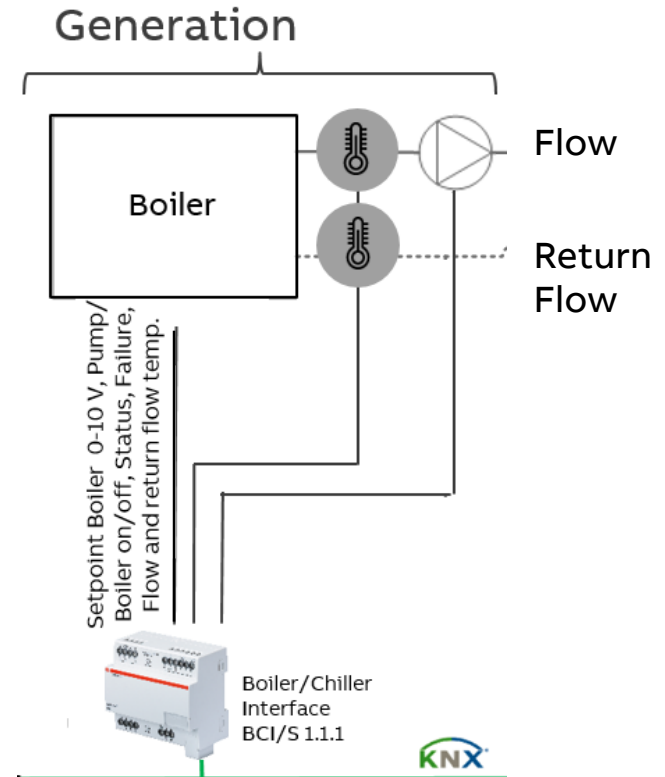
# Webinar "Valve Drive Controller and more"

## Boiler/Chiller Interface BCI/S

### How does the Boiler/Chiller Interface function in a Heating/Cooling System?

A boiler or chiller offers typically 0-10V interface in order to control the water temperature or power

- Standard solution on the market:
  - Connection of outdoor temperature sensor, boiler/chiller temperature to be adjusted depending on outside temperature
  - Connection of indoor temperature sensor in a reference room
- Both solutions do not consider the real Heat/Cool demand of the complete system

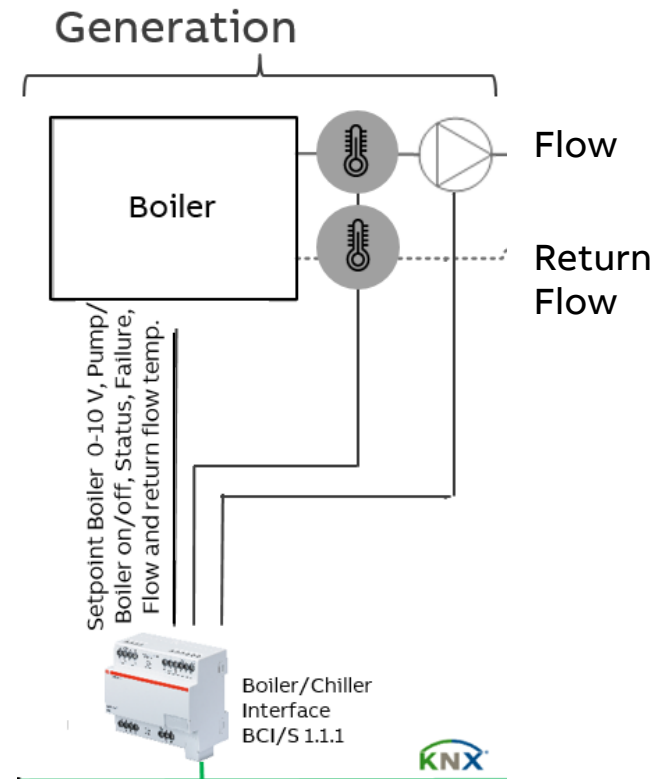


# Webinar "Valve Drive Controller and more"

## Boiler/Chiller Interface BCI/S

### How does the Boiler/Chiller Interface function in a Heating/Cooling System?

- The BCI, supported by the Application Controller AC/S, is able to control the temperature/power of the boiler/chiller depending on the real demand
- Beside the provision of 0-10V for boiler/chiller temperature or power BCI/S controls the pump (depending on actuating value to the boiler/chiller), transmits status information (pump) and temperature values (Flow/Return flow)
- The main intelligence (especially to provide the right control value) is located in the Application Controller AC/S (ASM's Boiler Heat generator and Chiller)
  - It means, no controller inside boiler/chiller interface

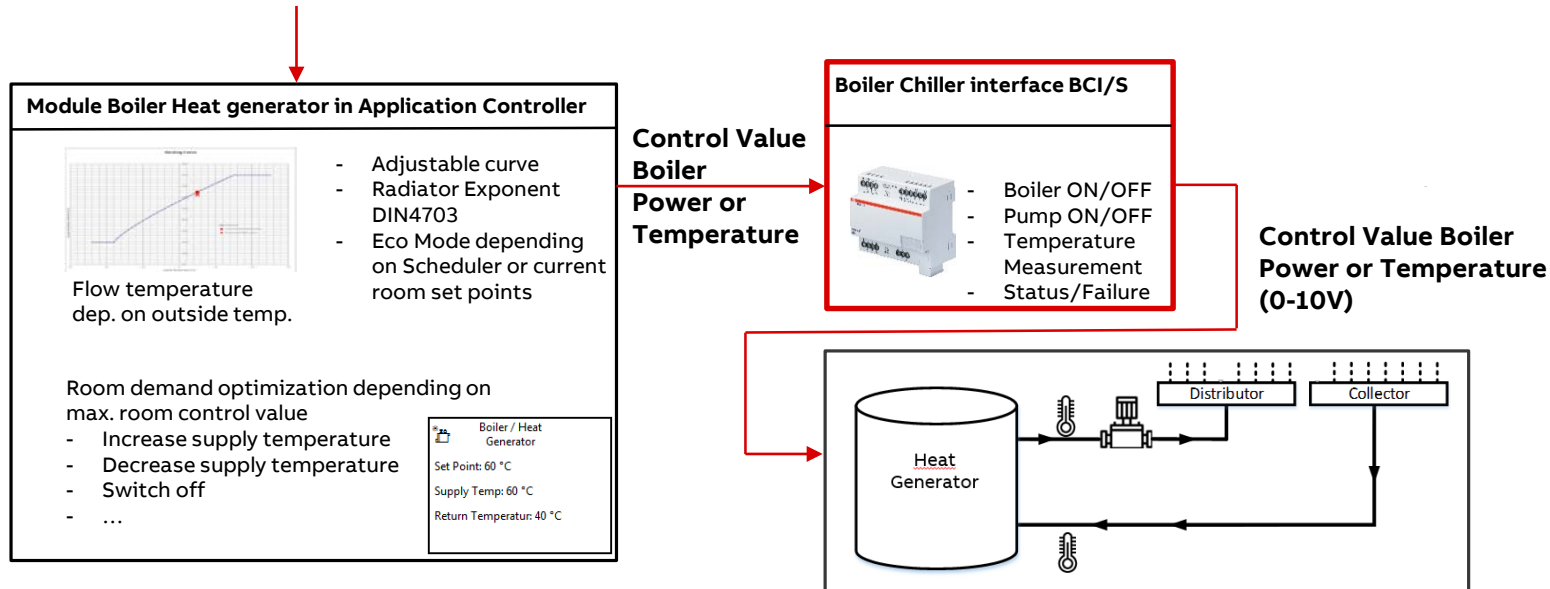


# Webinar "Valve Drive Controller and more"

## Boiler/Chiller Interface BCI/S (Heating Control)

1. **Without** Heating Circuit control: **Outside Temperature**  
(or ASM/WebUI/BACnet input)

2. **With** Heating Circuit control : **Maximum Control Value**  
from the actuators in the rooms

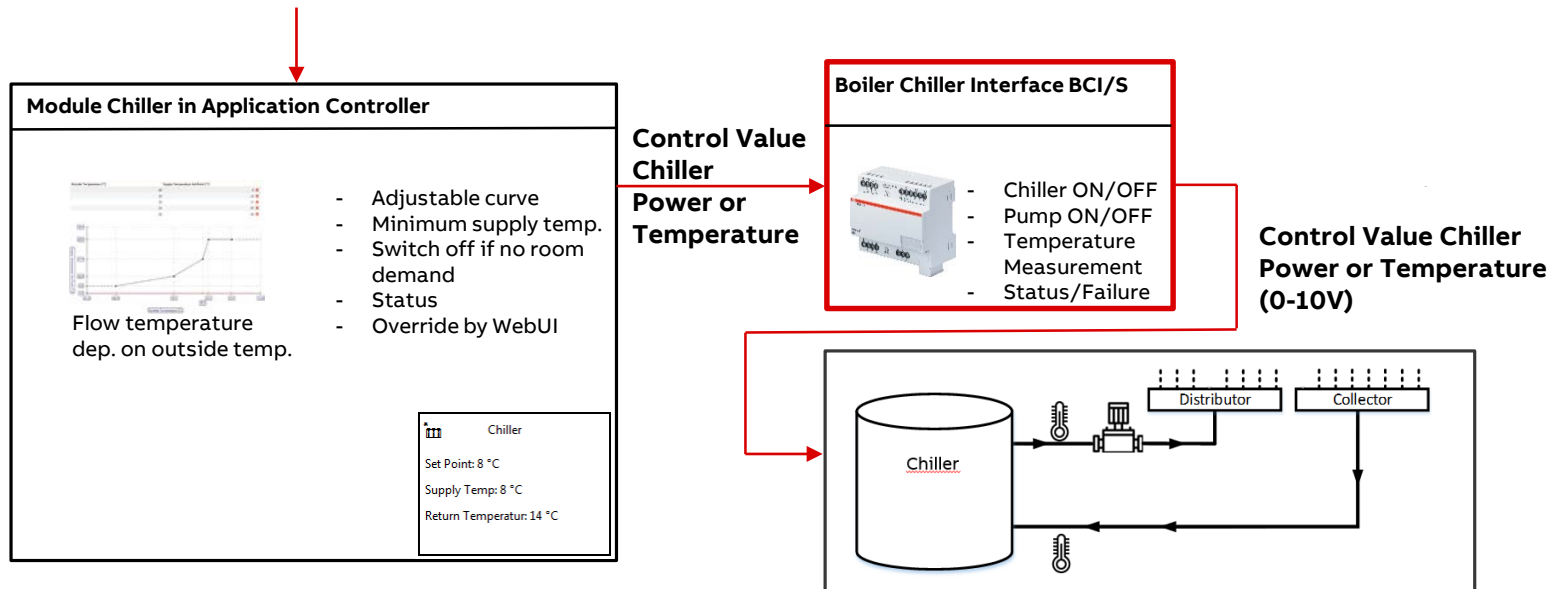


# Webinar "Valve Drive Controller and more"

## Boiler/Chiller Interface BCI/S (Cooling Control)

1. **Without** Cooling Circuit control: **Outside Temperature**  
(or ASM/WebUI/BACnet input)

2. **With** Cooling Circuit control : **Maximum Control Value**  
from the actuators in the rooms



# Webinar "Valve Drive Controller and more"

## Boiler/Chiller Interface BCI/S

### Motivation – Features

- Control of a Boiler/Chiller and main pump **NEW**
- Expansion of ABB i-bus KNX to the Automation level
- Expansion of ABB i-bus KNX to the Generation level
- Necessary for for a holistic approach of a HVAC solution completly with ABB i-bus KNX (Automation- and Generation level)
- Control of necessary water temperature (set point) in the boiler/chiller via 0-10V
- Turn on/off of boiler/chiller
- Turn on/off of pump of the main heating/cooling circuit
- Measurement of flow- and return flow temperature



# Webinar "Valve Drive Controller and more"

## Boiler/Chiller Interface BCI/S

### Motivation – Features

- 0-10 V output for control value boiler/chiller
- Two relay outputs for boiler/chiller and pump
- Binary inputs for status or other functions
  - 2 binary inputs failure, status boiler/chiller
  - 3 binary inputs failure, status, repair switch pump
  - 2 analogue inputs for flow- and return flow temperature
- One device without manual operation
- → I/O device for boilers and chillers with dedicated functions for it's purpose
- No controller inside, it's an interface, therefore no interference with the internal safety mechanism of the boiler or chiller unit
- ABB i-bus Tool support





# Webinar "Valve Drive Controller and more"

## Boiler/Chiller Interface BCI/S

### ETS features

- Forced operation with defined control value (power or temperature for boiler/chiller) and pump status
- Control of pump depending on control value, e.g. pump off when value below 2 %
- Run-on time for pump
- Control value zero when pump shut down
- Start- and exit flow temperature for boiler/chiller control
- Inputs for pump or boiler/chiller status or free use
- Adjustable 0-10V output for boiler/chiller control value

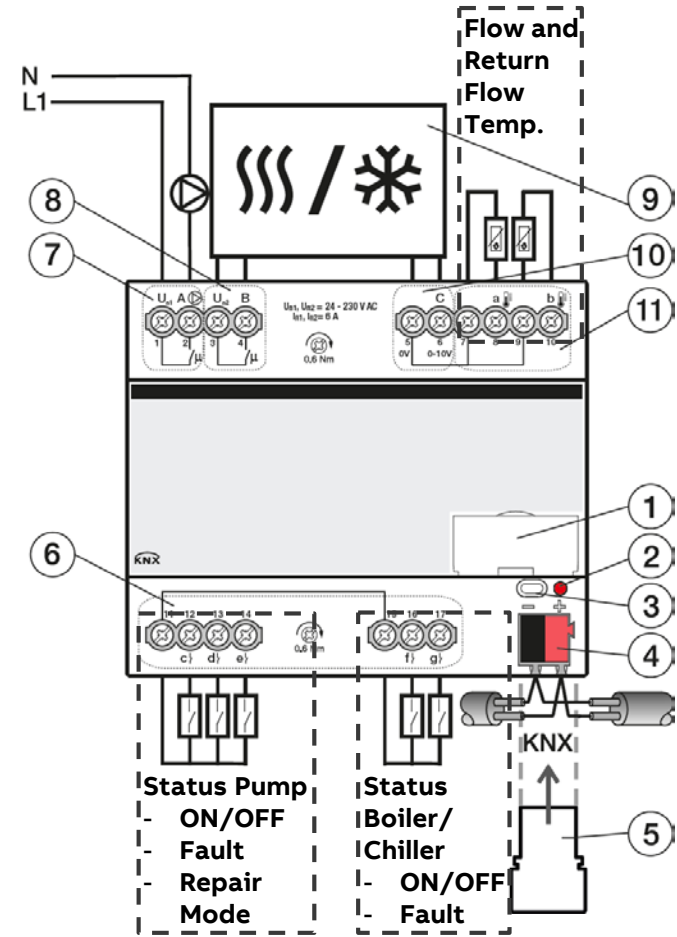


# Webinar "Valve Drive Controller and more"

## Boiler/Chiller Interface BCI/S

### BCI/S 1.1.1

1. Label carrier
2. KNX programming button
3. KNX programming LED (red)
4. KNX connection
5. Cover cap
6. Binary inputs (c, d, e, f, g)
7. Relay output A (Pump)
8. Relay output B (Boiler/Chiller)
9. Boiler (Heat Generator)/Chiller
10. Analog Output C  
(Set point to Boiler/Chiller)
11. Temperature input (a, b)



# Webinar "Valve Drive Controller and more"

## Boiler/Chiller Interface BCI/S

### Technical Data

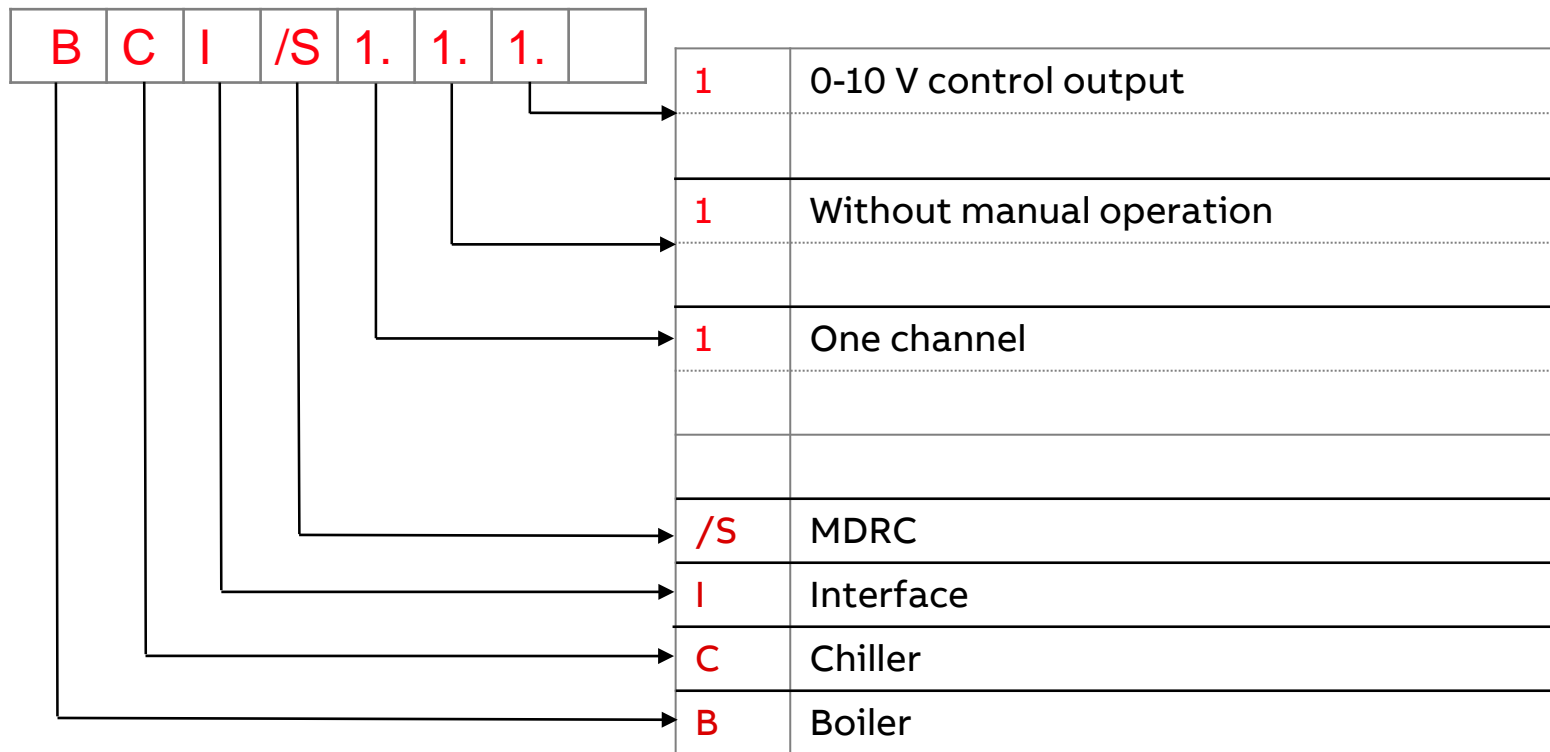
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	BCI/S 1.1.1
Number of channels	1
Interface to Boiler/Chiller	0-10V and Relay (5A)
Inputs for sensors (total)	7
Inputs for temperature measurement	2
Inputs for pump status	3
Inputs for Boiler/Chiller status	2
Pump output	1 (5A)
Module width	6

# Webinar "Valve Drive Controller and more"

## Boiler/Chiller Interface BCI/S

### BCI/S 1.1.1 – Type Description



# Webinar "Valve Drive Controller and more"

## Boiler/Chiller Interface BCI/S

### BCI/S 1.1.1

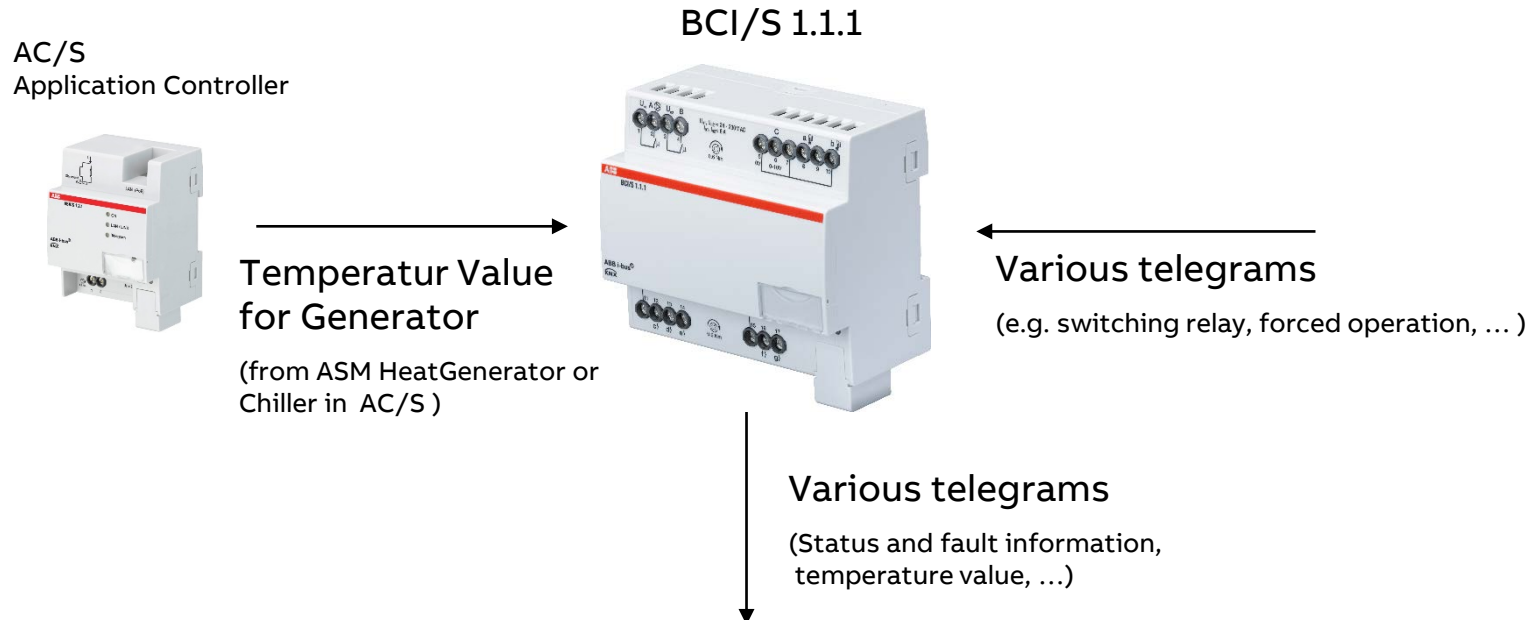
- Ident No. 2CDG 110 222 R0011
- List price: 380 Euro
- Availability: October 2018



# Webinar "Valve Drive Controller and more"

## Boiler/Chiller Interface BCI/S

### BCI/S linked in KNX with ...



# Webinar "Valve Drive Controller and more"

## KNX Certified Training

Certified KNX Courses in Heidelberg

- Tutor Course 09<sup>th</sup> to 13<sup>th</sup> Oct.
- Basic Course : 05<sup>th</sup> to 09<sup>th</sup> Nov. *New!!!*

And many more training courses in the calendar "International Training Dates 2018"

[www.abb.com/knx](http://www.abb.com/knx) or  
<https://go.abb/ba-training>



## Certified KNX Basic Course February 2018 in Heidelberg



# Webinar "Valve Drive Controller and more"

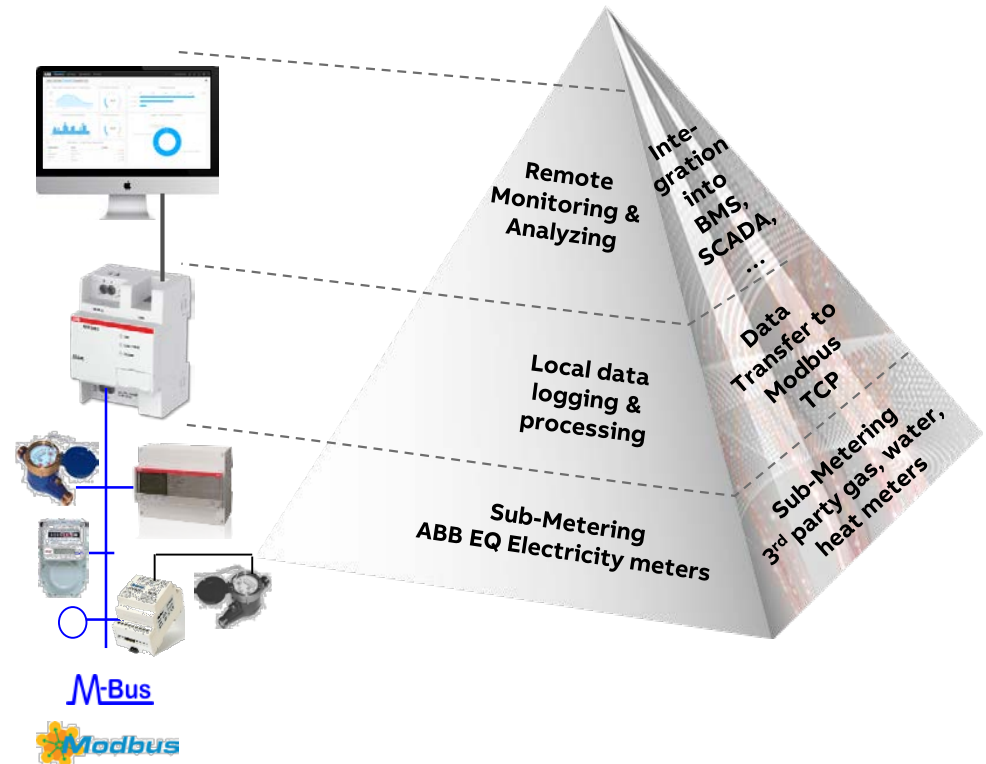
## Next Webinar

### EQmatic – Energy Analyzer QA/S

- Energy Analyzer
  - M-Bus QA/S 3.x.1
  - Modbus QA/S 4.x.1 – new!
- New Firmware-Update
  - Modbus/TCP (for data transfer to other systems)
  - Scheduled data sending

**Wednesday 19<sup>th</sup> September 2018**

- Morning 09:00 am Europe Time (Berlin, UTC + 2h)
- Afternoon 03:00 pm Europe Time (Berlin, UTC + 2h)





# Webinar "Valve Drive Controller and more"

## Next Webinar

### ClimaECO – Devices

New ClimaECO devices:

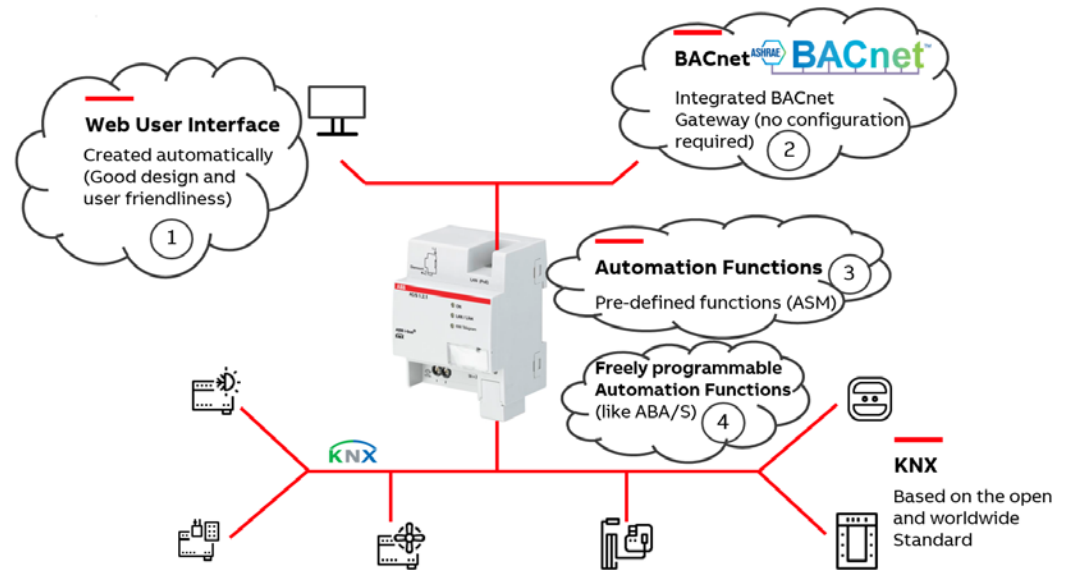
- Application Controller AC/S 1.x.1

The heart of ClimaECO

- Web User- and BACnet interface
- Pre-defined and freely programmable automation functions

**Wednesday 10<sup>th</sup> Oktober 2018**

- Morning 09:00 am Europe Time (Berlin, UTC + 2h)
- Afternoon 03:00 pm Europe Time (Berlin, UTC + 2h)



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