



16ο KNX Café  
10/12/2019 - 18:00  
Speaker: Γιώργος Λάζος, KNX Tutor



### KNX και Εφαρμογές HVAC

Τι υπάρχει εκεί έξω από τους διάφορους κατασκευαστές KNX συσκευών; (και όχι μόνο...)  
Ποιες είναι οι νέες δυνατότητες και οι ευκαιρίες που ανοίγονται για τον KNX Integrator;



ΜΗΧΑΝΟΛΟΓΟΣ

ΠΑΡΑΓΩΓΗ  
(ZNX)

ΔΙΑΝΟΜΗ

ΚΑΤΑΝΑΛΩΣΗ

KNX  
INTEGRATOR



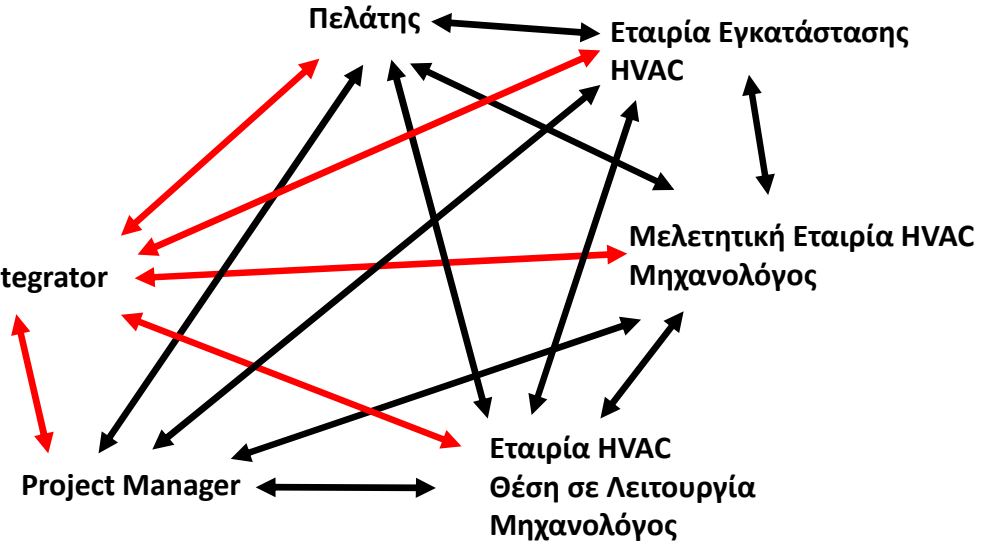
Το Ευρωπαϊκό Πρότυπο EN 15232 «Ενεργειακή απόδοση κτιρίων - Επίδραση του Αυτοματισμού Κτιρίων, των Ελέγχων και της Κτιριακής Διαχείρισης» συντάχθηκε σε συνδυασμό με την Πανευρωπαϊκή εφαρμογή της Οδηγίας για την Ενεργειακή Απόδοση των Κτιρίων ΟΕΕΚ 2002/91/ΕΚ, και χρησιμοποιείται για την αξιολόγηση όλων των κτιρίων, ανάλογα με τις λύσεις αυτοματισμού που διαθέτουν.

Εδώ δίνεται ένας γενικός και ταυτόχρονα συνοπτικός κατάλογος λειτουργιών και μια βασική προσεγγιστική αντιστοίχιση με τις κατηγορίες ενεργειακής απόδοσης των κτιρίων (A, B, C και D) από τον αντίστοιχο βασικό πίνακα 2 του προτύπου EN 15232.

α/α	Έλεγχος θέρμανσης / ψύξης	Έλεγχος αερισμού / κλιματισμού	Φωτισμός	Προστασία από ηλιακή ακτινοβολία
<b>A</b>	<ul style="list-style-type: none"> <li>- Ολοκληρωμένος έλεγχος και διαχείριση κάθε δωματίου</li> <li>- Έλεγχος συστήματος εσωτερικής αντιστάθμισης (έλεγχος μετρομένης εσωτερικής θερμοκρασίας/set point)</li> <li>- Καμία δυνατότητα παράλληλης λειτουργίας θέρμανσης και ψύξης (μανδαλωμένες λειτουργίες)</li> </ul>	<ul style="list-style-type: none"> <li>- Η παροχή αέρα σε κάθε δωμάτιο γίνεται κατόπιν ζήτησης ή από την ανίχνευση παρουσίας ανθρώπων</li> <li>- Μεταβλητό set point ελέγχου θερμοκρασίας προσαγωγής αέρα (έλεγχος φορτίου/προσαγωγής αέρα-PID)</li> <li>- Έλεγχος υγρασίας με παροχή ή απαγωγή αέρα από το χώρο</li> </ul>	<ul style="list-style-type: none"> <li>- Αυτόματη ανίχνευση φωτός ημέρας και έλεγχος φωτισμού</li> <li>- Έλεγχος παρουσίας ανθρώπων και αυτόματη ενεργοποίηση φωτισμού</li> <li><i>Παράλληλη δυνατότητα:</i> <ul style="list-style-type: none"> <li>- χειροκίνητο on / αυτόματο off</li> <li>- χειροκίνητο on / ρύθμ. φωτεινότητας</li> <li>- αυτόματο on / αυτόματο off</li> <li>- αυτόματο on / ρύθμ. φωτεινότητας</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- Συνδυαστικός έλεγχος: <ul style="list-style-type: none"> <li>» φωτισμού</li> <li>» ρολών σκίασης</li> <li>» HVAC (θέρμανση, αερισμός, A/C)</li> </ul> </li> </ul>
<b>B</b>	<ul style="list-style-type: none"> <li>- Ανεξάρτητος έλεγχος κάθε δωματίου με επικοινωνία μεταξύ ελεγκτών και BACS</li> <li>- Έλεγχος συστήματος εσωτερικής αντιστάθμισης</li> <li>- Μερική μανδάλωση λειτουργιών θέρμανσης και ψύξης (ανάλογα με το σύστημα HVAC)</li> </ul>	<ul style="list-style-type: none"> <li>- Η παροχή αέρα σε κάθε δωμάτιο γίνεται σε προκαθορισμένα χρονικά διαστήματα</li> <li>- Μεταβλητό set point ελέγχου της θερμοκρασίας προσαγωγής αέρα, ανάλογα με την εξωτερική θερμοκρασία</li> <li>- Έλεγχος υγρασίας με παροχή ή απαγωγή αέρα από το χώρο</li> </ul>	<ul style="list-style-type: none"> <li>- Χειροκίνητος έλεγχος φωτισμού κατά τη διάρκεια της ημέρας</li> <li>- Έλεγχος παρουσίας ανθρώπων και αυτόματη ενεργοποίηση φωτισμού</li> <li><i>Παράλληλη δυνατότητα:</i> <ul style="list-style-type: none"> <li>- χειροκίνητο on / ρύθμ. φωτεινότητας</li> <li>- αυτόματο on / αυτόματο off</li> <li>- αυτόματο on / ρύθμ. φωτεινότητας</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- Ηλεκτρικός έλεγχος (μέσω μοτέρ) των μηχανισμών σκίασης και ρολών</li> </ul>
<b>C</b>	<ul style="list-style-type: none"> <li>- Ανεξάρτητος έλεγχος σε κάθε δωμάτιο μέσω θερμοστατικών βαλβιδών ή ηλεκτρονικών ελεγκτών</li> <li>- Έλεγχος συστήματος εσωτερικής αντιστάθμισης</li> <li>- Μερική μανδάλωση λειτουργιών θέρμανσης και ψύξης (ανάλογα με το σύστημα HVAC)</li> </ul>	<ul style="list-style-type: none"> <li>- Η παροχή αέρα σε κάθε δωμάτιο γίνεται σε προκαθορισμένα χρονικά διαστήματα</li> <li>- Σταθερό set point θερμοκρασίας προσαγωγής αέρα</li> <li>- Περιορισμένη παροχή αέρα για έλεγχο υγρασίας</li> </ul>	<ul style="list-style-type: none"> <li>- Χειροκίνητος έλεγχος φωτισμού κατά τη διάρκεια της ημέρας</li> <li>- Χειροκίνητος διακόπτης on/off &amp; sweeping extinction signal (τουλάχιστον ένας ηλεκτρικός χειρισμός κατά τη διάρκεια της ημέρας)</li> <li>- Χειροκίνητος διακόπτης on/off</li> </ul>	<ul style="list-style-type: none"> <li>- Ηλεκτρικός έλεγχος (μέσω μοτέρ) των μηχανισμών σκίασης και ρολών</li> </ul>
<b>D</b>	<ul style="list-style-type: none"> <li>- Κανένας αυτόματος έλεγχος.</li> <li>- Κανένας έλεγχος συστήματος αντιστάθμισης</li> <li>- Καμία μανδάλωση λειτουργιών θέρμανσης και ψύξης</li> </ul>	<ul style="list-style-type: none"> <li>- Καμία παροχή αέρα</li> <li>- Κανένας έλεγχος θερμοκρασίας προσαγωγής αέρα</li> <li>- Κανένας έλεγχος υγρασίας</li> </ul>	<ul style="list-style-type: none"> <li>- Χειροκίνητος έλεγχος φωτισμού κατά τη διάρκεια της ημέρας</li> <li>- Χειροκίνητος διακόπτης on/off &amp; sweeping extinction signal</li> <li>- Χειροκίνητος διακόπτης on/off</li> </ul>	<ul style="list-style-type: none"> <li>- Χειροκίνητος έλεγχος των μηχανισμών σκίασης και ρολών</li> </ul>

ΠΗΓΗ: <http://stefoutologlou.blogspot.com/>

KNX Systems Integrator



HVAC & KNX

ΝΕΡΟ  
ΨΥΚΤΙΚΟ

ΜΗΧΑΝΟΛΟΓΟΣ

ΠΑΡΑΓΩΓΗ  
(ZNX)

ΔΙΑΝΟΜΗ

ΚΑΤΑΝΑΛΩΣΗ

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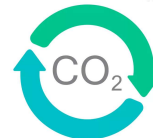
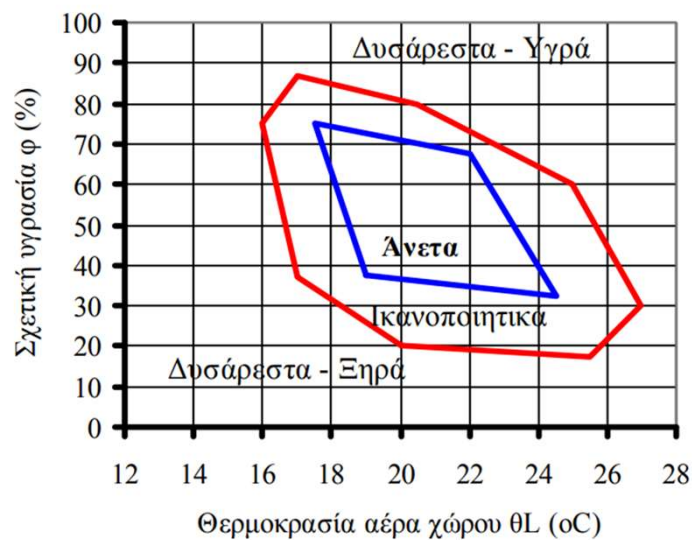
**ΣΤΟΧΟΣ: Η ΑΝΕΣΗ**



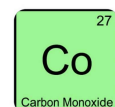
**ΕΞΩΤΕΡΙΚΗ  
ΘΕΡΜΟΚΡΑΣΙΑ**

**ΚΑΤΑΝΑΛΩΣΗ**

**ΣΤΟΧΟΣ: Η ΑΝΕΣΗ**

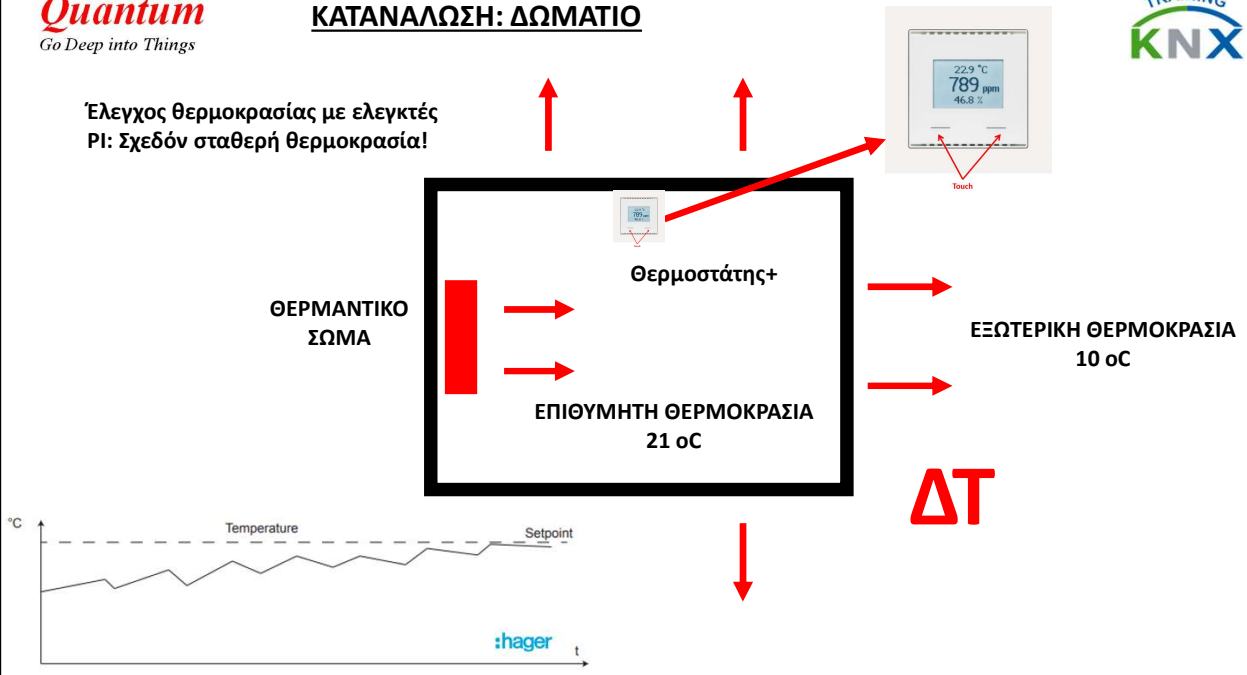


**VOC**

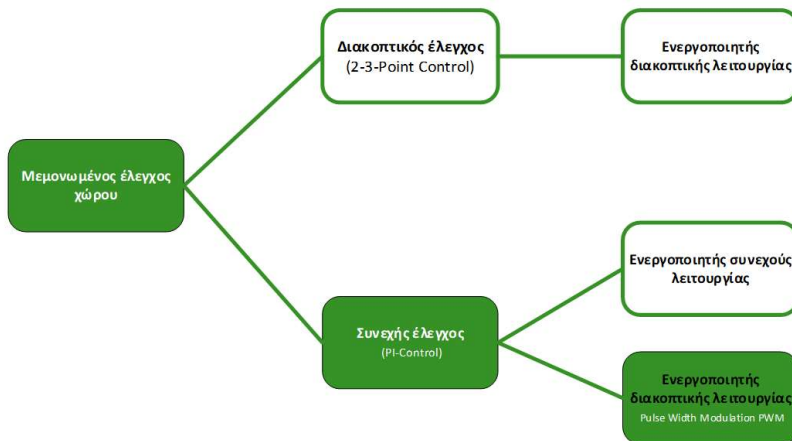


**ΚΑΤΑΝΑΛΩΣΗ: ΔΩΜΑΤΙΟ**

Έλεγχος θερμοκρασίας με ελεγκτές  
PI: Σχεδόν σταθερή θερμοκρασία!



**Ο σωστός συνδυασμός ρυθμιστή και οδηγού βαλβίδας**



Ο καλός συνεχής έλεγχος μπορεί επίσης να επιτευχθεί με οδηγούς βαλβίδων διακοπτικής λειτουργίας!

Η διαμόρφωση πλάτους παλμού (Pulse Width Modulation - PWM) κάνει δυνατή την σχεδόν συνεχή λειτουργία με οδηγούς βαλβίδων διακοπτικής λειτουργίας!



Type of control

Nominal value general

Receive changed setpoints  
after mode change

Setting the nominal values

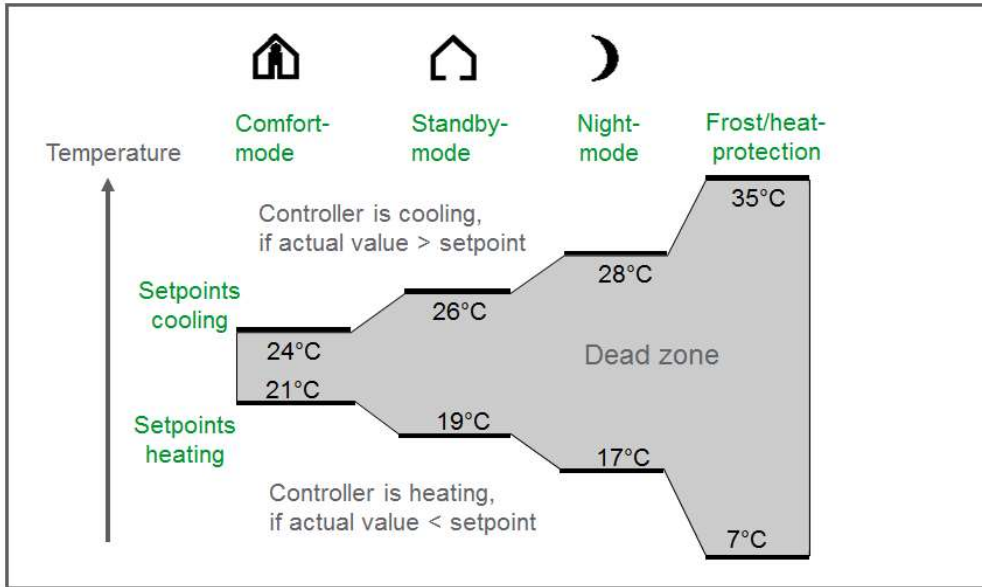
One-stage heating

- One-stage heating ✓
- Two-stage heating
- One-stage cooling
- One-stage heating + one-stage cooling
- Two-stage heating + one-stage cooling
- Two-stage heating + two-stage cooling

with comfort nominal value as a basis

1.1.2 6134-102 Raumtemperaturregler > Configuration of heating/cooling system

Configuration of heating/cooling...	Activation of heat / cool function	Heat
Setpoints	Type of heat function	PWM-control
Configuration of functionality	Adaptation of PI control to the heating system	warm water heating ( 5 K / 150 min )
Measurement of room temperature...		warm water heating ( 5 K / 150 min ) ✓
Control value output		floor heating ( 5 K / 240 min )
		electric heating ( 4 K / 100 min )
		Fan coil unit ( 4 K / 90 min )
		SplitUnit ( 4 K / 90 min )
		via control parameter



Ενεργοποιητής On/Off

Συσκευή: 1.1.60 Switch actuator REG-K/2x230/16

General	Type of device	2 channel
Channel configuration	1 Operation mode	Heating
1 Heating	2 Operation mode	Heating
2 Heating		

**Βαλβίδα που οδηγείται από ενεργοποιητή KNX**



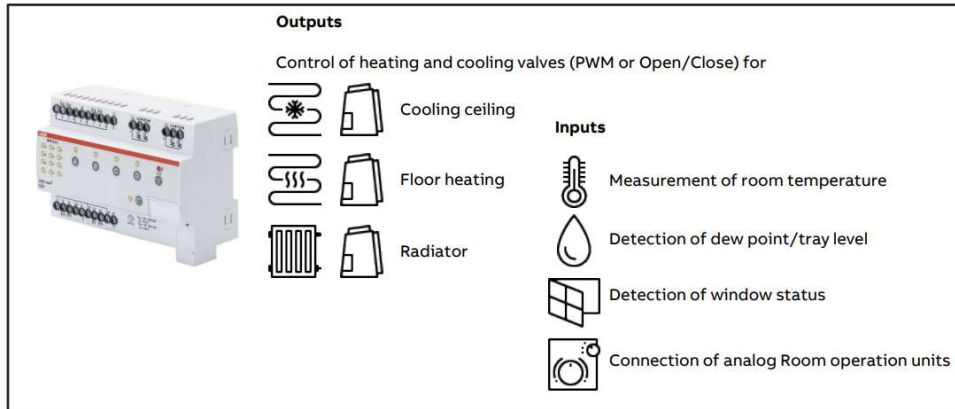
EMO valve drive with binary inputs



**Ηλεκτροβάννα KNX**

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

VC/S 4.x.1 Functionality of a Valve Drive Controller



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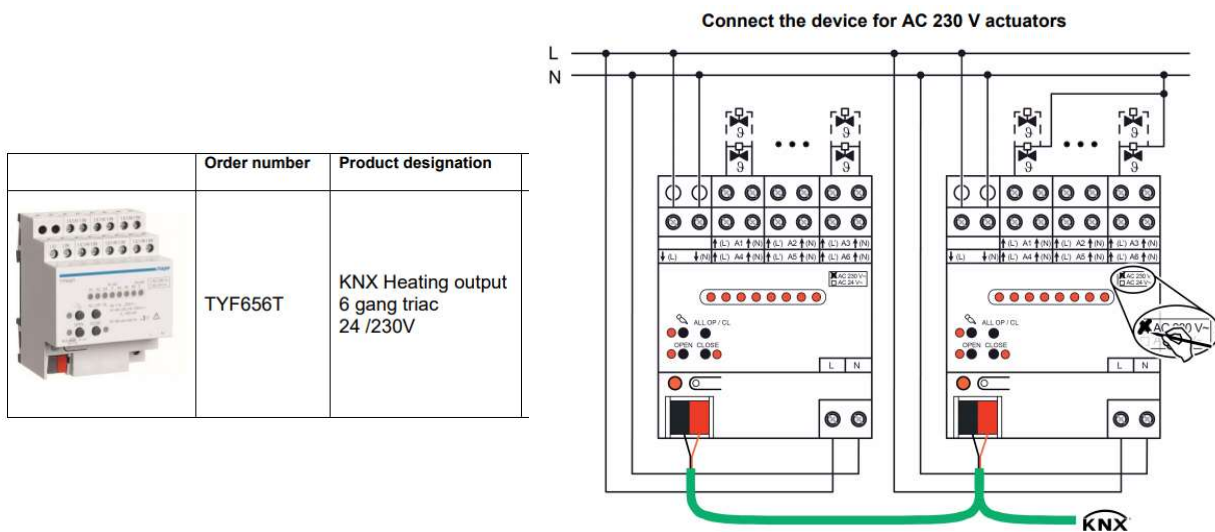
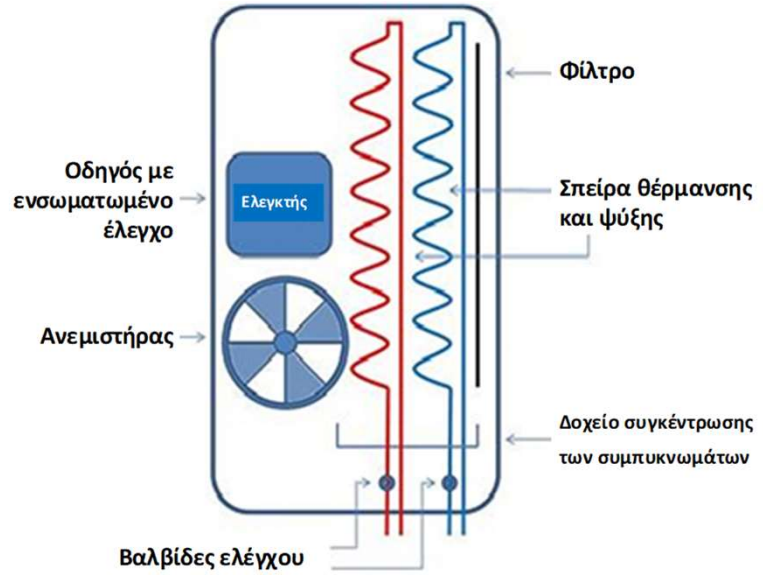


Figure 2: Connection for AC 230 V actuators (connection examples)  
Left: Neutral conductor of the actuators run separately to the actuator /  
Right: Shared neutral conductor for actuators



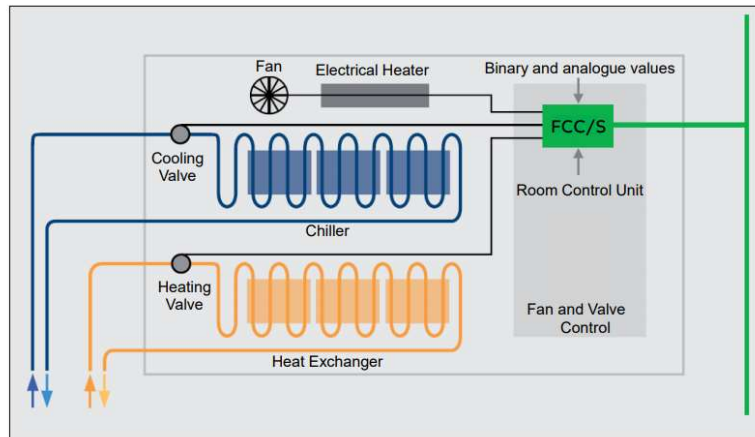
### Σχεδιασμός μιας μονάδας fan coil

**Olimpia Splendid  
Bi2 Plus SL Plus  
800**



### Σχεδιασμός μιας μονάδας fan coil

Fan Coil Unit in principle (4-pipe System)



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

FCC/S 1.x.y.1 Product Range



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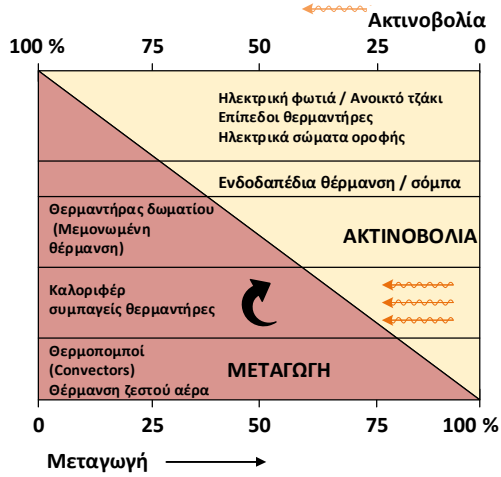
FCC/S 1.x.y.1 Technical Data I

Function/Device	FCC/S 1.1.x.1	FCC/S 1.2.x.1	FCC/S 1.3.x.1	FCC/S 1.4.1.1	FCC/S 1.5.x.1
Integrated Room temperature controller (unified RTC)	X	X	X	X	X
Valve Control					
PWM	X (2)	-	-	X (1)	X (2)
or motoric	X (1)	-	-	-	X (1)
0-10V	-	X (2)	X (2)	-	-
Control of 6-way valves	-	X	X	-	-
2-pipe system	X	X	X	X	X
4-pipe system	X	X	X	-	X
3-stage fan (5A)	X	X	-	X	-
Continues fan	-	-	X	-	X
Inputs for sensors	4	4	4	4	4
Inputs for analogue RCU	1	1	1	1	1
Relay output for electrical heater (16A)	X	X	X	-	X
Module width	6	6	6	6	6
Variant with keypad	X	X	X	-	X
Variant without keypad	X	X	X	X	X

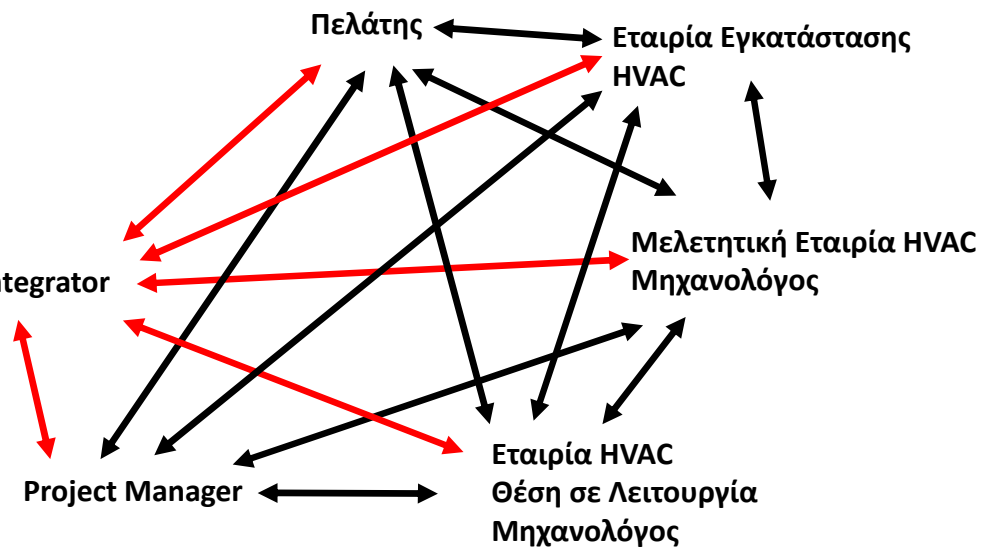
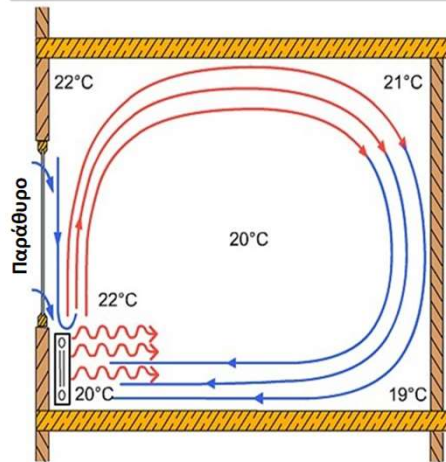
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Κατανομή της ακτινοβολίας και της μεταγωγής ανάλογα με το σύστημα θέρμανσης



Η εγκατάσταση ενός θερμαντικού σώματος κάτω από το παράθυρο προκαλεί μία πιο ισορροπημένη κατανομή της θερμοκρασίας στον χώρο



ΜΗΧΑΝΟΛΟΓΟΣ  
ΠΑΡΑΓΩΓΗ  
(ZNX)

ΔΙΑΝΟΜΗ

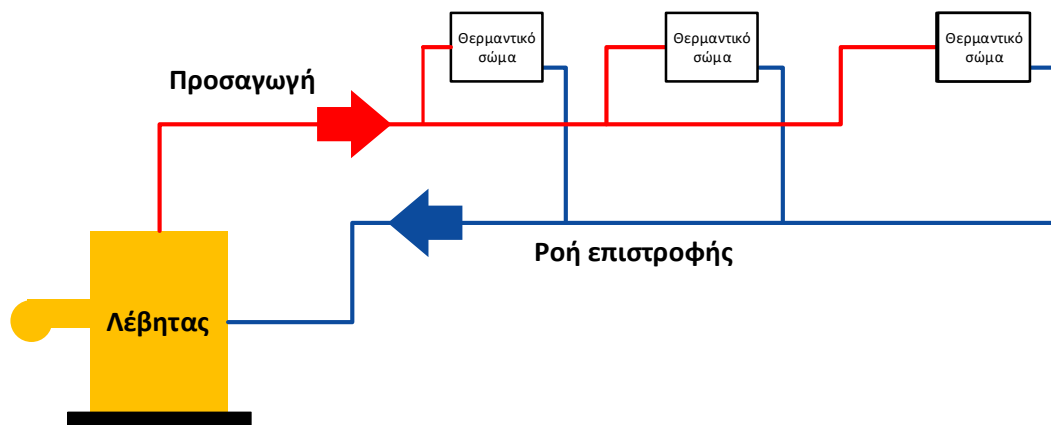
ΚΑΤΑΝΑΛΩΣΗ

KNX  
INTEGRATOR



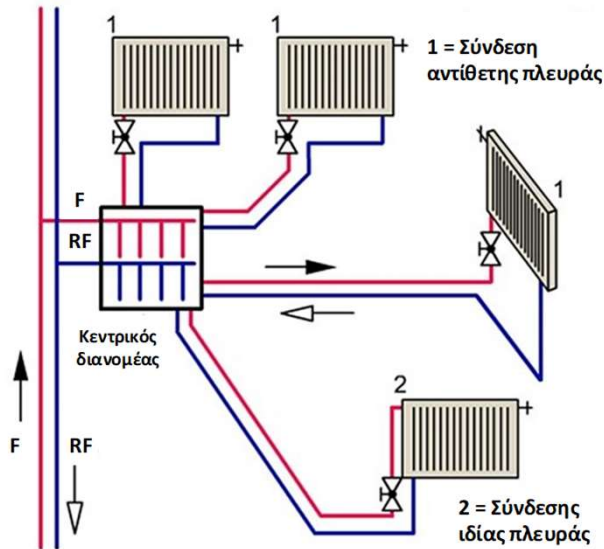
## Συστήματα Διανομής Θερμότητας

Δισωλήνιο σύστημα θέρμανσης



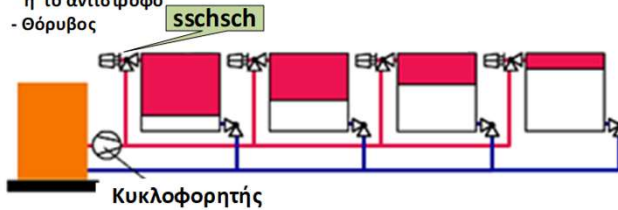
## Συστήματα Διανομής Θερμότητας

### Διάταξη αστέρα σε ένα δισωλήνιο σύστημα

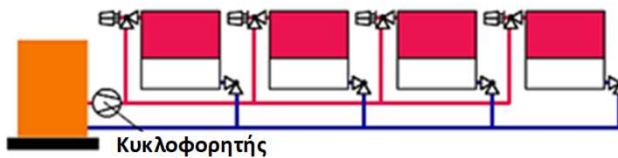


## Υδραυλική Εξισορρόπηση

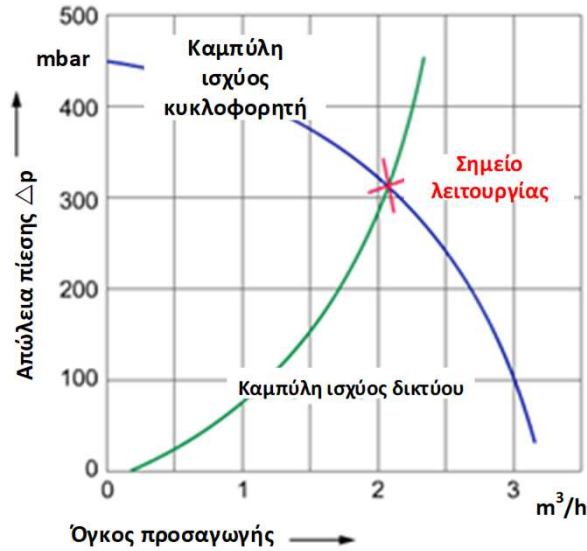
- Όταν δεν υπάρχει υδραυλική εξισορρόπηση:
- Υπερδιαστασιολογημένο σύστημα παροχής
  - Υπερβολικά τροφοδοτούμενος καταναλωτής ή το αντίστροφο
  - Θόρυβος



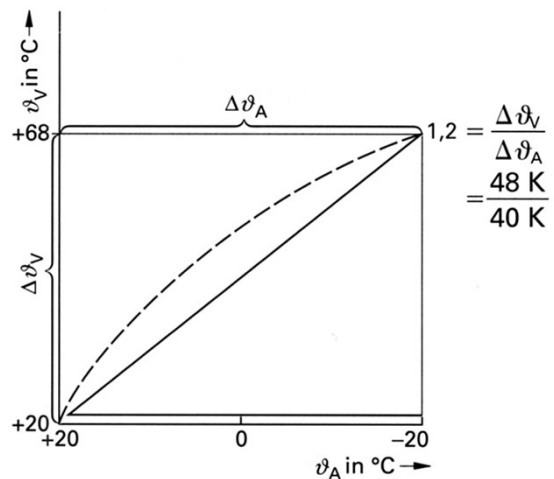
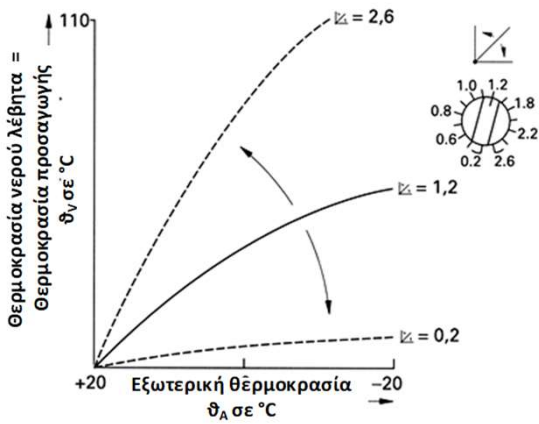
- Σωστή υδραυλική εξισορρόπηση:
- Όλοι οι καταναλωτές τροφοδοτούνται ομοιόμορφα,
  - Σύστημα χαμηλής (σωστής) τροφοδοσίας,
  - Αθόρυβη εγκατάσταση



### Καμπύλες ισχύος κυκλοφορητή και δικτύου



### Η Καμπύλη Θέρμανσης (Heating Curve)



Πηγή: [www.vaillant.de](http://www.vaillant.de)

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

HCC/S 2.x.y.1 Heating Cooling Circuit Controller

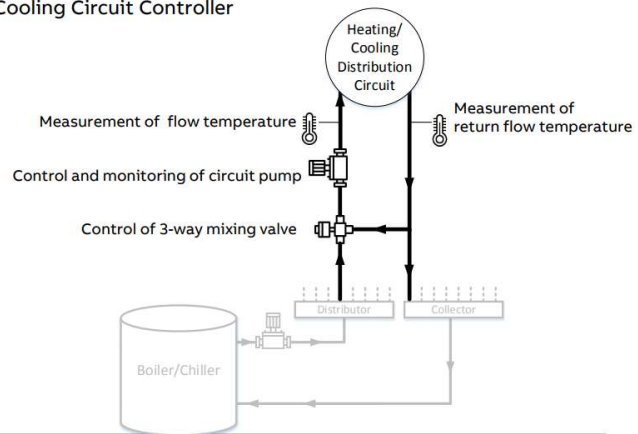
Demand based control of the distribution circuit – for maximum energy savings in the HVAC system



- Actuator with inputs and integrated controller
- Control of mixing valve and pump
- 2 independent channels
- Control of 2 single or 1 double pump circuits

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

HCC/S 2.x.y.1 Functionality of a Heating/Cooling Circuit Controller



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

HCC/S 2.x.y.1 Technical Data I

Function/Device	HCC/S 2.1.x.1	HCC/S 2.2.x.1
Integrated temperature controller for heating or cooling mixing circuit	X	X
Number of channels	2	2
Valve control type	0-10V	3-Point (motoric)
Inputs for sensors per channel	5	5
Inputs for temperature measurement	2	2
Inputs for pump status	3	3
Pump output per channel	1 (5A)	1 (5A)
Module width	8	8
Version with Keypad	X	X
Version without Keypad	X	x



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HCC/S 2.2.y.1 Technical Data II

**HCC/S 2.2.2.1**

**HCC/S 2.2.1.1**

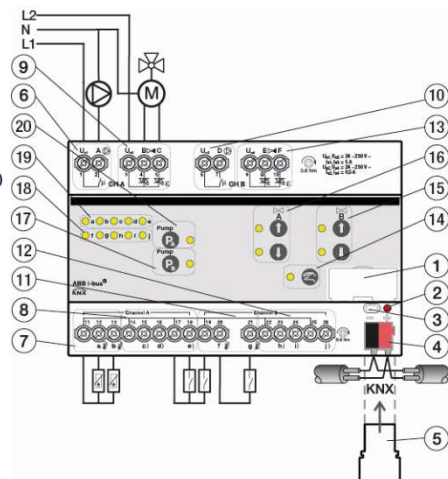


HCC/S 2.2.2.1  
2CDG 110 221 R0011

HCC/S 2.2.1.1  
2CDG 110 220 R0011

Valve drive control: 3-Point

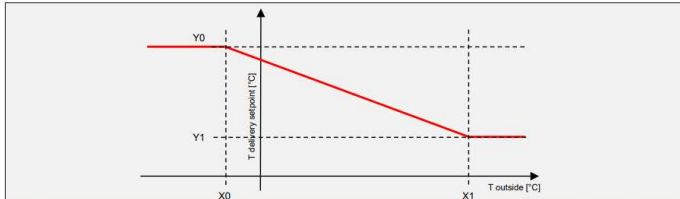
1. Label carrier
2. KNX programming button
3. KNX programming LED (red)
4. KNX connection
5. Cover cap
6. Relais output (Pump) CH A
7. Temperature inputs CH A
8. Binary inputs (Pump) CH A
9. Valve output CH A
10. Relais output (Pump) CH B
11. Temperature inputs CH B
12. Binary inputs (Pump) CH B
13.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





The mixing group to which this application manual refers is made by the following components:

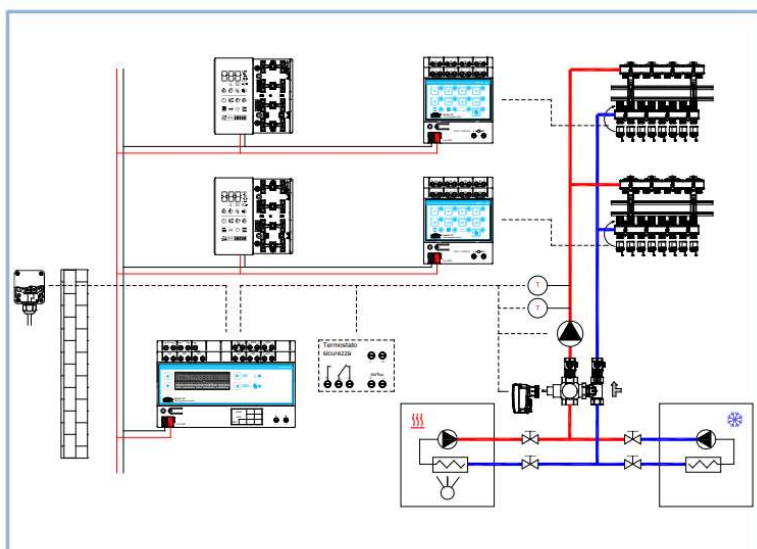
- Mixing valve
- Servomotor paired to the mixing valve
- Circulator after the valve
- Immersion delivery sensor
- Safety immersion delivery sensor



ETS parameters	C.O.	Display parameters	default	Unit
Y0 Max delivery setpoint	49 - Max delivery setpoint (heating)	OUT COMPENSATION T_SET MAX: 49,0C	40,0	[°C]
Y1 Min delivery setpoint	48 - Min delivery setpoint (heating)	OUT COMPENSATION T_SET MIN: 30,0C	30,0	[°C]
X0 Outside temperature T0, by design	51 - T outside T0 (heating)	OUT COMPENSATION T0_OUTSIDE: -5,0C	-5,0	[°C]
X1 Outside temperature T1, for compensation start	50 - T outside T1 (heating)	OUT COMPENSATION T1_OUTSIDE: 18C	18,0	[°C]



**Application Manual  
EK-HH1-TP  
Mixing group controller**



**Application Manual  
EK-HH1-TP  
Mixing group controller**



## Heating actuator PRO

Manufacturer's number: 1504-0011  
Manufacturer type: HAKL-10RFT

Innovative, energy-efficient and convenient control: Water-based underfloor heating systems with motorized actuators are easy to put into operation and optimally regulated.



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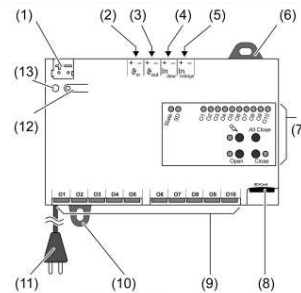


Figure 1: Front view

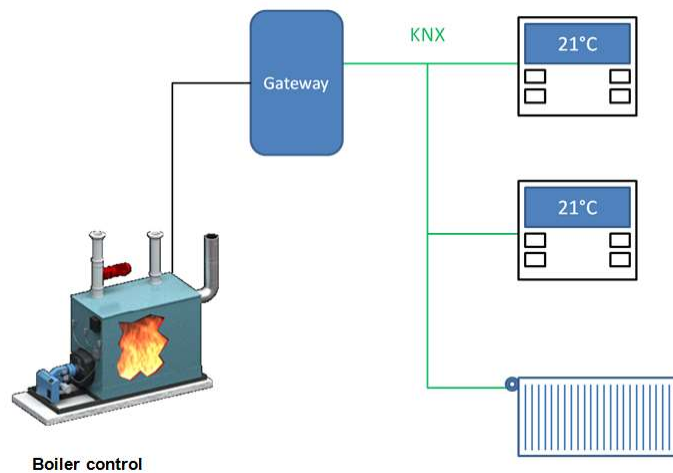
- (1) Bus connection
- (2) Connection of the temperature sensor for the flow (accessories)
- (3) Connection of the temperature sensor for the return (accessories)
- (4) Connection of the dew point sensor (accessories)
- (5) Connection of the leakage sensor (accessories)
- (6) Fastening strap for surface mounting
- (7) Status LED and keypad
- (8) Slot for SD card
- (9) Connection of valve drives (accessories)
- (10) Fastening strap for surface mounting
- (11) Mains connection
- (12) Programming button
- (13) Programming LED

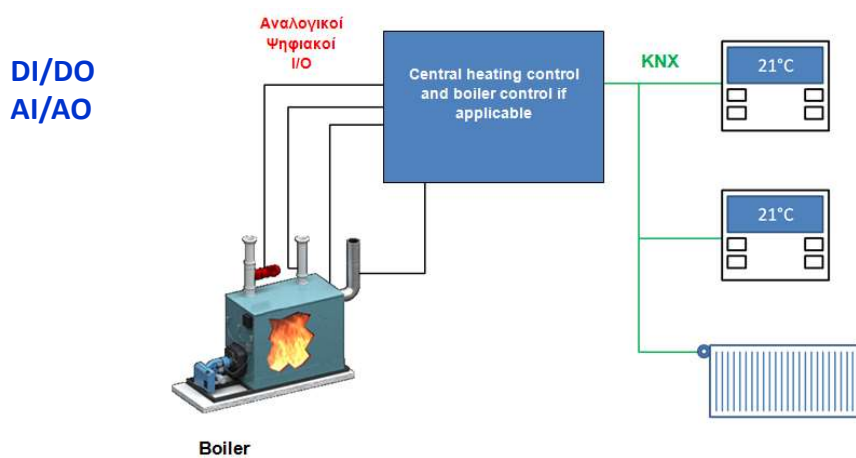
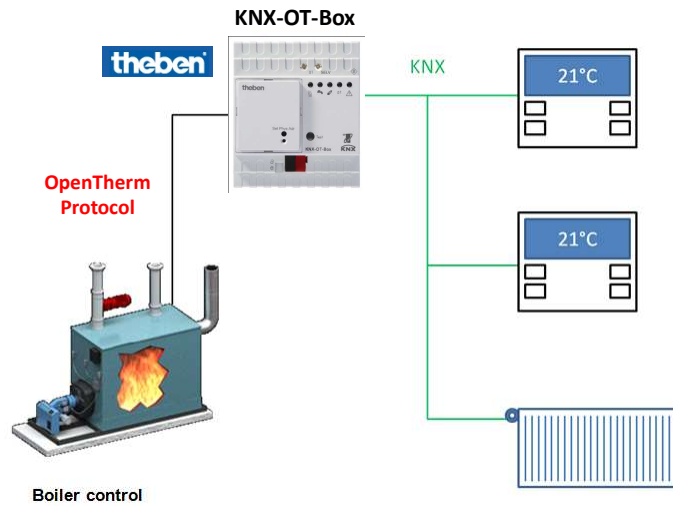
**ΜΗΧΑΝΟΛΟΓΟΣ  
ΠΑΡΑΓΩΓΗ  
(ZNX)**

ΔΙΑΝΟΜΗ

ΚΑΤΑΝΑΛΩΣΗ

KNX  
INTEGRATOR





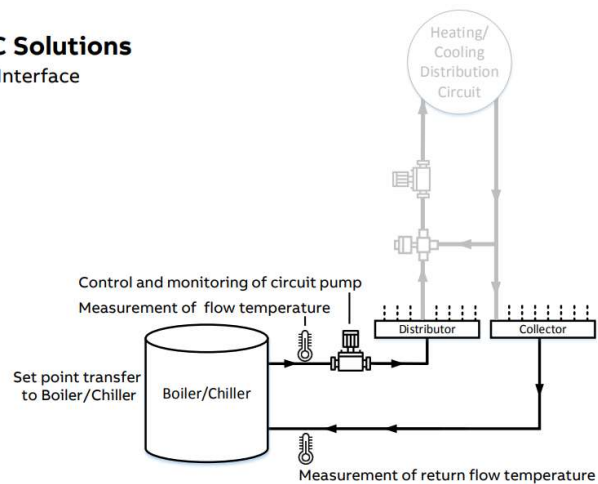
**ClimaECO: ABB i-bus® KNX HVAC Solutions**  
BCI/S 1.1.1 Boiler Chiller Interface

Easy Integration of Boiler and Chiller into KNX – securing a energy efficient and reliable HVAC System



- Standard interface to boiler and chiller
- Control of circuit pump
- Monitoring of temperature and pump status
- No interference with internal safety functions of Boiler or Chiller

**ClimaECO: ABB i-bus® KNX HVAC Solutions**  
BCI/S 1.1.1 Functionality of a Boiler/Chiller Interface



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

BCI/S 1.1.1 Technical Data I

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



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

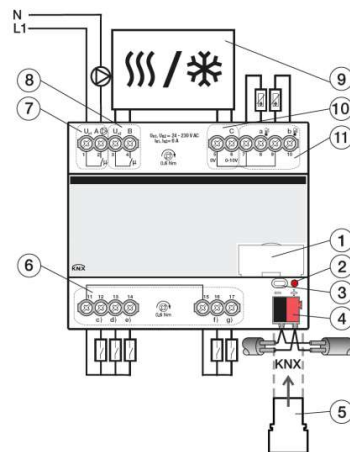
BCI/S 1.1.1 Technical Data II

**BCI/S 1.1.1**



BCI/S 1.1.1  
2CDG 110 222 R0011

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 transfer to Boiler/Chiller)
11. Temperature input (a, b)

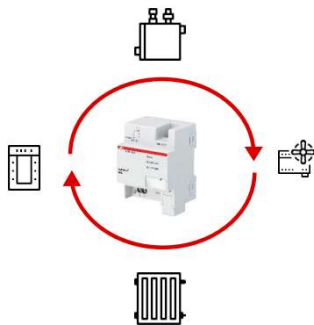


**ClimaECO: ABB i-bus® KNX HVAC Solutions**  
AC/S 1.x.1 Application Controller



**+** Links all your System Parts to a holistic Solution to reach your Costs and Energy Efficiency Objectives

**ClimaECO: ABB i-bus® KNX HVAC Solutions**  
AC/S 1.x.1 Application Controller: Functions



**Automation Functions**

- Predefined Automation Modules for a holistic HVAC Automation Solution from Central HVAC to Room Automation. Helps you to meet your Energy Efficiencies Objectives like EN 15232 or LEED
- Time Switch
- KNX Time Master by NTP (Internet) or BACnet
- Trend Log: Record up to one year for easy maintenance
- Freely Programmable Logic to solve your challenges in your Projects
- Easy Logic development with simulation on Device or offline
- This decentral Solution is much more reliable compared to run automation functions on PC based SCADA or BMS Systems

**Predefined Modules**

- Room HVAC
- Room Set Points
- Heating Distribution Circuit
- Cooling Distribution Circuit
- Boiler / Heat Producer
- Chiller
- Heating / Cooling Changeover
- ON/OFF Scheduler
- HVAC Mode Scheduler
- Temperature Scheduler
- Trend Log
- Generic Value
- Link

Introduction

**Software Features**

- Predefined Automation Modules for a holistic HVAC Automation Solution from Central HVAC to Room Automation to meet Energy Efficiency objectives like EN 15232 or LEED
- Time scheduler
- Trend Log to record data up to three years for further processing like maintenance
- Automation modules for rooms, chiller, heating and cooling circuits and more
- Logic functions and more with simulation online and offline, well known from Logic Controller ABA/S 1.2.1
- Decentral solution, more reliable compared to run automation functions on PC based SCADA or BMS Systems

The screenshot shows a web-based interface for HVAC control. It is divided into three main sections:
 

- Scheduler:** Contains three modules: 'HVAC mode Scheduler WebUI' (Value: HVAC mode), 'Temperature Scheduler WebUI' (Value: temperature (°C)), and 'Value' (Value: temperature (°C)).
- Room 1:** Displays 'Room Set Point: 20.0 °C', 'Room Temperature: 20.0 °C', 'Room Set Points' (Comfort Heating: 20 °C, Comfort Cooling: 24 °C), and a 'Link' field with 'http://...'.
- Automation:** Shows 'Automation' and 'Cooling Distribution Cl...' (Set Point: 8 °C, Supply Temp: 6 °C, Return Temperature: 14 °C, Valve 85 %).



Introduction

**1. Application Specific Modules**

Predefined Automation Modules

- ASM -> **Application Specific Module**
- Represent specific functionality, can execute function by itself or together with other ASM's e.g. room setpoints or heating/cooling circuit control
  - In- and/or outputs (sockets)
  - Parameters
  - Group objects
  - Linking view with sockets to be connected to KNX objects, WebUI, BACnet or other ASM's

The screenshot shows a wiring diagram at the top with 'Room (1)', 'Temperature', and 'Setpoint' objects connected by lines. Below it is a table listing various KNX objects:

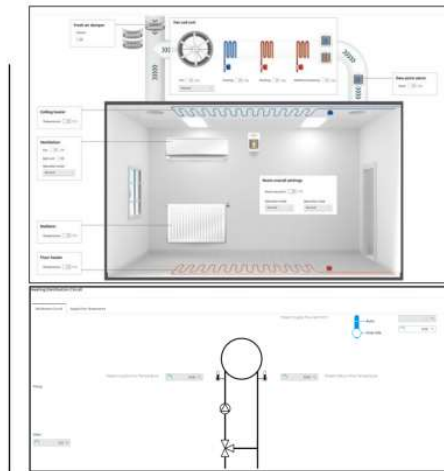
Element	Number	Name	Object Function	Length
Control	H21	HVAC mode Scheduler WebUI	Output: State	1 byte
Control	H22	Temperature Scheduler WebUI	Output: State	2 bytes
Control	H23	Value	Input: Value	2 bytes
Control	H24	Room	Input: Present Room Temperature	2 bytes
Control	H25	Room	Input: Actual Set Point Temperature	2 bytes
Control	H26	Room Set Points	Output: Cooling Protection	2 bytes
Control	H27	Room Set Points	Output: Cooling Economy	2 bytes
Control	H28	Room Set Points	Output: Cooling Standby	2 bytes
Control	H29	Room Set Points	Output: Cooling Comfort	2 bytes
Control	H30	Room Set Points	Output: Heating Comfort	2 bytes
Control	H31	Room Set Points	Output: Heating Standby	2 bytes
Control	H32	Room Set Points	Output: Heating Economy	2 bytes
Control	H33	Room Set Points	Output: Heating Protection	2 bytes
Control	H34	Cooling Distribution Circuit	Input: Valve Actuating Value	1 byte
Control	H35	Cooling Distribution Circuit	Input: Supply Temperature	2 bytes
Control	H36	Cooling Distribution Circuit	Input: Return Flow Temperature	2 bytes
Control	H37	Cooling Distribution Circuit	Output: Supply Set Point Temperature	2 bytes
Control	H38	Cooling Distribution Circuit	Input: Present Room Temperature	2 bytes
Control	H39	Room (1)	Input: Actual Set Point Temperature	2 bytes
Control	H40	Temperature	Output: Value	2 bytes
Control	H41	Setpoint	Output: Value	2 bytes
Control	H21001	Device clock	Request time	1 bit
Control	H21002	Device clock	Date	3 bytes
Control	H21003	Device clock	Time	3 bytes
Control	H21004	Device clock	Date/Time	6 bytes



Introduction

**2. Web User Interface (WebUI)**

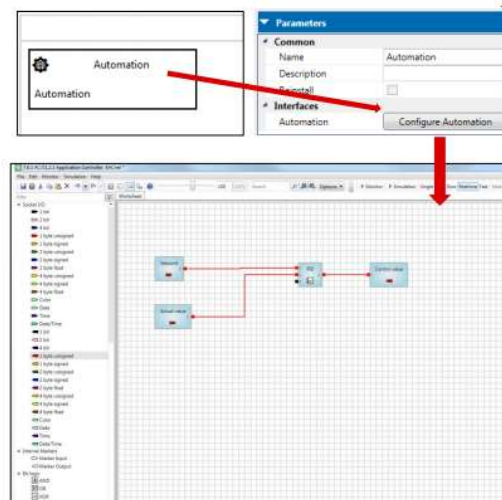
- The WebUI is automatically created based on the selected Automation Modules and it is predefined in layout and functions
- A simple but powerful sophisticated user interface, also sufficient as small visualization for some projects
- In addition to SCADA/BMS systems in big projects as backup interface for commissioning and maintenance
- For access only browser and IP address of AC/S required



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**4. Automation**

ASM Automation: Freely programmable logic like Logic Controller ABA/S 1.2.1



50

Performance

Overview

Feature	Quantity
Application Specific Modules (ASM)	500
ASM Scheduler	15
ASM central HVAC (Heating Distribution Circuit, Cooling Distribution Circuit, Boiler, Chiller)	15
ASM Trend (10 ASM each 5 trends ... 50 ASM each one trend)	50
Duration up to ...	3 years
KNX group objects	2,000
Additional group objects for clock functions	4
Group addresses in total	16,000
BACnet objects	500
Maximum number of WebUI accesses	5



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Performance

Overview

Feature	Quantity
Automation ASM (Logic like ABA/S), more than one possible, but in total ...	
Logic elements	1,000
Socket In- and Outputs	200
WebUI In- and Outputs	30

Utilization monitored in ETS:

	Current	Maximum
ASMs used	2	500
KNX group objects used	6	2000
BACnet objects used	0	500
ASM Schedules count	0	15
Central HVAC, ASM count	1	15
ASM Trend count	0	50

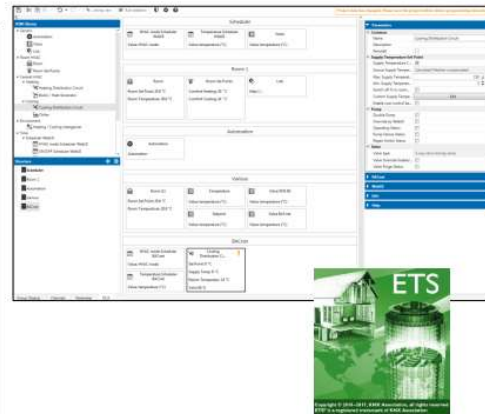


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ETS

**Features**

- Fully integrated in ETS (V. 5.6.5 or higher), no external Software required
- Reliable KNX Twisted Pair (TP) Communication
- Fast ETS Download over Ethernet (IP)
- Time synchronization either via
  - BACnet
  - KNX
  - NTP (Network Time Protocol)
- All Functions (ASM, Parameter, Linking view) integrated in DCA (Device Configuration App)
- The free of charge DCA has to be downloaded from the KNX Online Shop



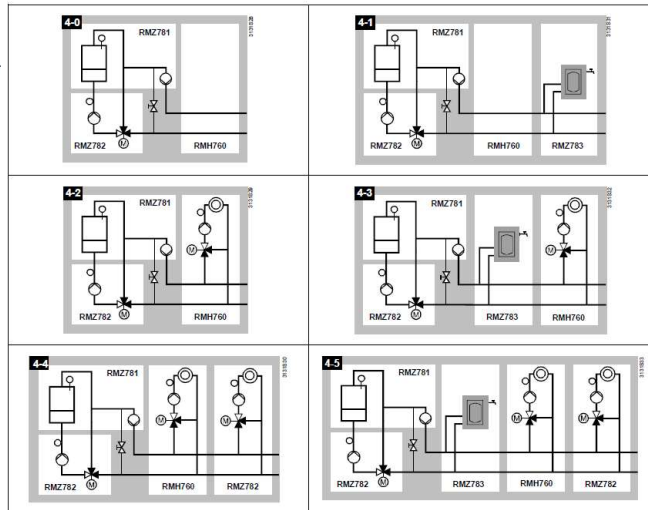
53



**Synco™ 700**  
**Modular heating controller RMH760**  
including RMZ781, RMZ782 and RMZ783 extension modules

54

**Basic types 4-x**  
Heat sources with main-  
tained boiler return tempera-  
ture and ...



55

The screenshot shows the configuration interface for an RMH760B Heating Controller. The left pane lists various parameters (0-70) such as system time, date, time of day, fault information, reset faults, fault state, fault transmission, room temperature, timer button, comfort button, room temperature setpoints, protection setpoint, economy setpoint, precomfort setpoint, comfort setpoint, mixing valve position, forced charging, operating mode, storage tank temperature setpoint, actual value storage tank temperature, and mixing valve positions. The right pane shows the 'Applications' section with a list of terminals (RMH760B, RMZ782(1), RMZ782(2), RMZ783, RMZ787, RMZ789(1), RMZ789(2)) and a table of settings for Heating circuit 1, Heating circuit 2, Heating circuit 3, Domestic hot water, Time switch operation, Main and primary controller, and Boiler.

Parameter	Value
Heating circuit 1	Yes
Room temperature	Receive
Time switch operation	No
Heating circuit 2	No
Heating circuit 3	No
Domestic hot water	Yes
Time switch operation	No
Main and primary controller	No
Boiler	No

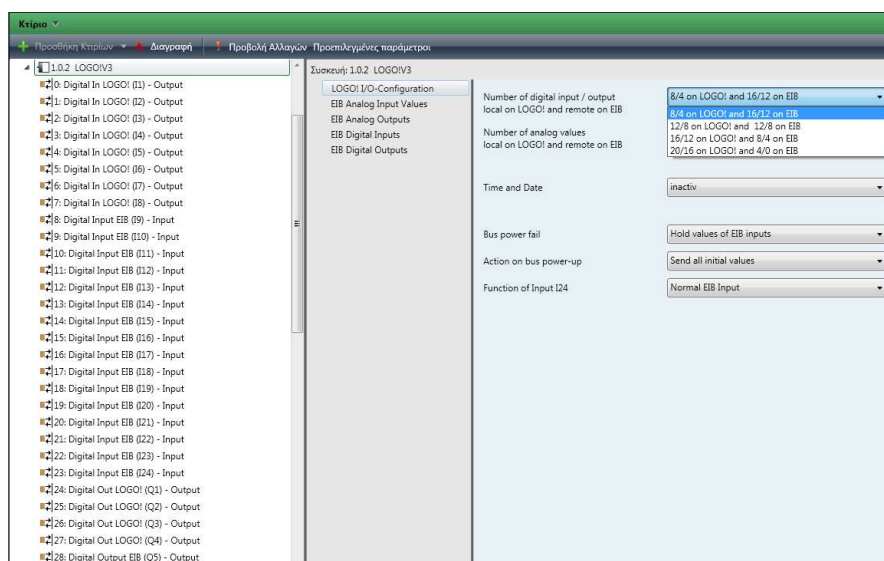


### Application examples for LOGO!

#### Overview

- ✓ Description
- ✓ New examples for LOGO! 0BA7 only
- ✓ Tips + tricks: Analog value processing (program parts)
- ✓ Tips + tricks: generally (program parts)
- ✓ Blind / gate applications
- ✓ HVAC - Heating / ventilation / air-conditioning
- ✓ Pump control / Irrigation
- ✓ Lighting
- ✓ Industrial applications
- ✓ Other applications
- ✓ Display

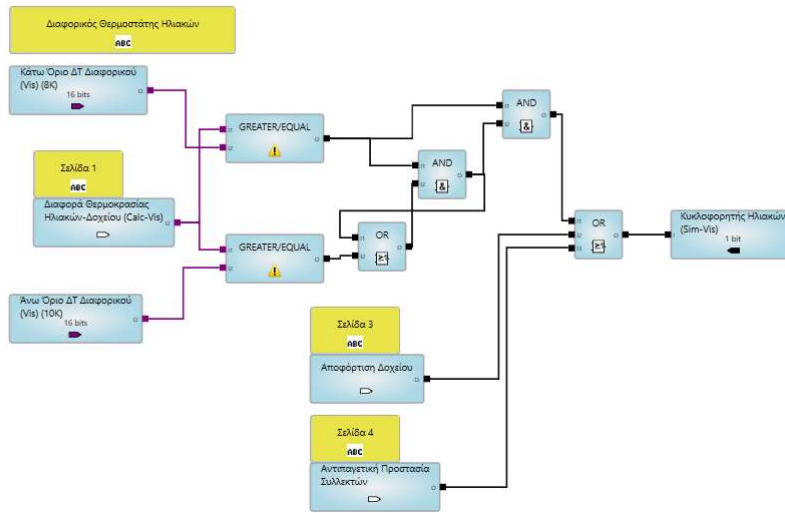
57



58

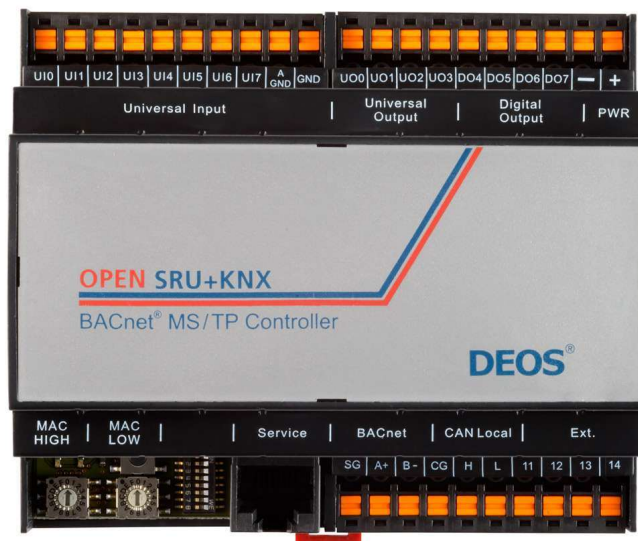
## Έλεγχος HVAC με KNX Logic Controller

- |                             |                                     |                            |                             |                    |                  |
|-----------------------------|-------------------------------------|----------------------------|-----------------------------|--------------------|------------------|
| 5. Ολοκλήρωση ✕             | 6. Επιλογή Πηγής ✕                  | 7. Απολύμανση με Αναβολή ✕ | 8. Ανακυκλοφορία ✕          | Threshold Switch ✕ | Create a Block ✕ |
| 1. Υπολογισμός ΔΤ Ηλιακών ✕ | 2. Διαφορικός Θερμοστάτης Ηλιακών ✕ | 3. Αποφόρτιση Δοχείου ✕    | 4. Αντιπαγετική Προστασία ✕ |                    |                  |



ABA/S 1.2.1

## Έλεγχος HVAC με BMS HVAC Application Controller που επικοινωνεί με το KNX



**Quantum**  
Go Deep into Things

Έλεγχος HVAC με BMS HVAC  
Application Controller που επικοινωνεί με το KNX



powered by  
**niagara**  
framework®

**SIEMENS**  
Ingenuity for life.

**Desigo**

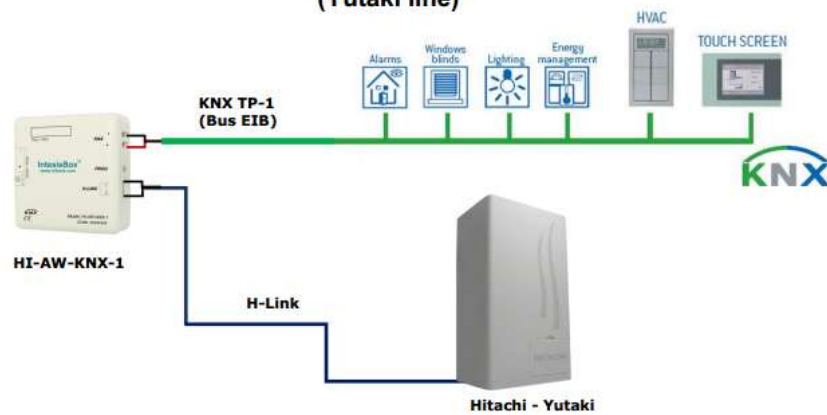


**Quantum**  
Go Deep into Things

Κτιριακά Servers



**Interface KNX for Hitachi Air-to-Water  
(Yutaki line)**



63

- 4  --- HI AW Interface
  - 0: Control\_Unit Run/Stop [DPT\_1.010] - 0-Stop;1-Run
  - 1: Control\_Unit Mode [DPT\_1.100] - 0-Cool;1-Heat
  - 2: Control\_C1 Run/Stop [DPT\_1.010] - 0-Stop;1-Run
  - 10: Control\_C1 Thermo Setpoint [DPT\_9.001] - °C
  - 11: Control\_C1 Ambient Temp [DPT\_9.001] - °C
  - 30: Control\_AntiLeg Run/Stop [DPT\_1.010] - 0-Stop;1-Run
  - 31: Control\_AntiLeg Setpoint [DPT\_9.001] - °C
  - 32: Control\_KNX Blocks/Enables Menu [DPT\_1.003] - 0-Enable;1-Block
  - 33: Control\_KNX Alarm Bit [DPT\_1.005] - 0-No alarm;1-Alarm
  - 34: Status\_Unit Mode [DPT\_1.100] - 0-Cool;1-Heat
  - 35: Status\_C1 Run/Stop [DPT\_1.010] - 0-Stop;1-Run
  - 43: Status\_C1 Thermo Setpoint [DPT\_9.001] - °C
  - 45: Status\_C1 Ambient Temp [DPT\_9.001] - °C
  - 69: Status\_AntiLeg Run/Stop [DPT\_1.010] - 0-Stop;1-Run
  - 70: Status\_AntiLeg Setpoint [DPT\_9.001] - °C
  - 71: Status\_KNX Blocks/Enables Menu [DPT\_1.003] - 0-Enable;1-Block
  - 72: Status\_KNX Alarm Bit [DPT\_1.005] - 0-No alarm;1-Alarm
  - 73: Status\_Error/Alarm [DPT\_1.005] - 0-No alarm;1-Alarm
  - 74: Status\_Error Code [2byte] - 0-No error/Any other see man.

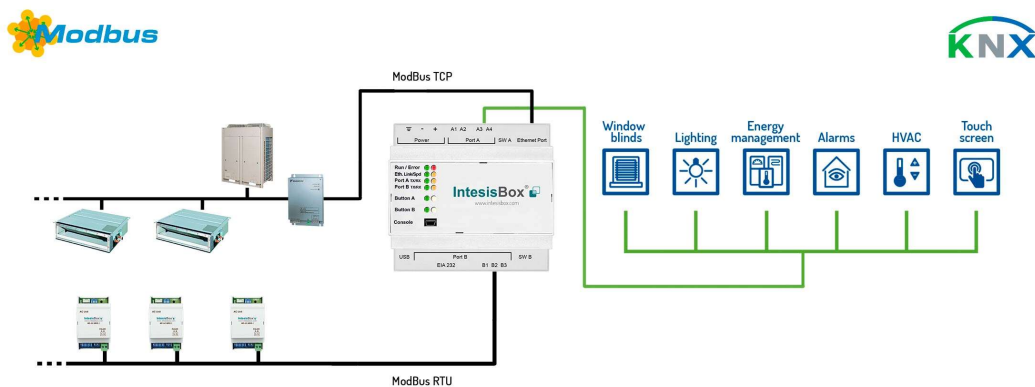
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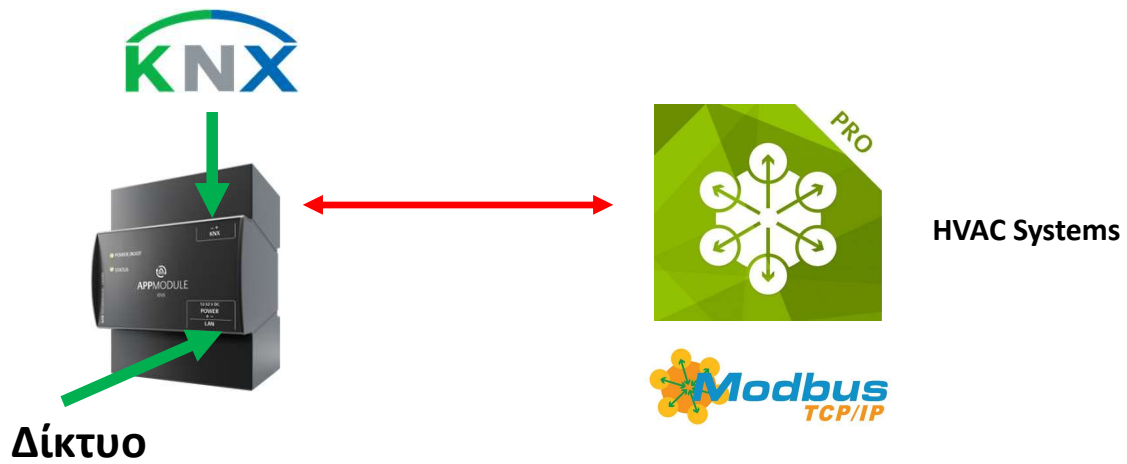
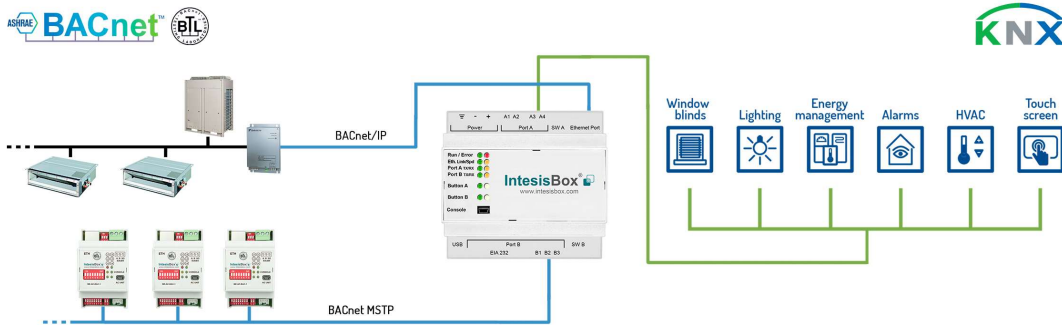


	ASCII	BACnet	EnOcean	KNX	LonWorks	Modbus	OPC
Arpelik AC	-	-	-	AK-AC-KNX-4/8/16/64	-	-	-
Daikin AC	-	DK-AC-BAC-1L DK-AC-BAC-1	DK-AC-ENO-1/1C	DK-AC-KNX-1i DK-AC-KNX-1	-	DK-AC-MBS-1	-
Daikin RC	-	DK-RC-BAC-1	DK-RC-ENO-1/1/1C	DK-RC-KNX-1i DK-RC-KNX-1	-	DK-RC-MBS-1	-
Fujitsu RC	-	-	-	FJ-AC-KNX-16 FJ-RC-KNX-1i	-	FJ-AC-MBS-1 FJ-RC-MBS-1	-
Haier AC	-	-	-	HA-AC-KNX	-	-	-
Hisense RC	-	HS-AC-BAC-16/64	-	HS-AC-KNX-16/64 HS-RC-KNX-1i	-	HS-AC-MBS-16/64 HS-RC-MBS-1	-
Hitachi AW	-	-	-	HI-AW-KNX-1	-	-	-
Hitachi RC	-	HI-AC-BAC-16/64 HI-AC-BAC-8/64 (Discontinued)	-	HI-AC-KNX-16/64 HI-RC-KNX-1i	-	HI-AC-MBS-16/64 HI-RC-MBS-1	-
IR	-	-	-	IS-IR-KNX-1i	-	-	-
LG AC	-	-	-	LG-AC-KNX-4/8/16/64	-	LG-AC-MBS-4/8/32/64	-
LG RC	-	-	-	LG-RC-KNX-1i	-	LG-RC-MBS-1	-
Midea AC	-	-	-	MD-AC-KNX-1B/16/64	-	MD-AC-MBS-1/4/8/32	-
Mitsubishi Electric AC	-	ME-AC-BAC-1L ME-AC-BAC-1	ME-AC-ENO-1/1C	ME-AC-KNX-15/100 ME-AC-KNX-1i ME-AC-KNX-1-V2	ME-AC-LON-1	ME-AC-MBS-50/100 ME-AC-MBS-1	-
Mitsubishi Heavy Ind AC	-	-	-	MH-AC-KNX-48/128	-	MH-AC-MBS-48/128	-
Mitsubishi Heavy Ind RC	-	MH-RC-BAC-1	MH-RC-ENO-1/1/1C	MH-RC-KNX-1i	-	MH-RC-MBS-1	-
Panasonic AC	-	PA-AC-BAC-16/64/128 PA-AC-BAC-64/128 (Discontinued) PA-AC-BAC-1	PA-AC-ENO-1/1/1C	PA-AC-KNX-64/128 PA-AC-KNX-1i	-	PA-AC-MBS-64/128 PA-AC-MBS-1	-

	ASCII	BACnet	EnOcean	KNX	LonWorks	Modbus	OPC
Panasonic AW	-	-	-	PA-AW2-KNX-1	-	PA-AW2-MBS-1	-
Panasonic RC	-	-	-	PA-RC-KNX-1i	-	-	-
Panasonic RC2	-	PA-RC2-BAC-1	-	PA-RC2-KNX-1i	-	PA-RC2-MBS-1	-
Samsung NASA AC	-	SM-ACN-BAC-4/8/16/64	-	SM-ACN-KNX-4/8/16/64	-	SM-ACN-MBS-4/8/16/64 SM-RC2-MBS-1	-
Samsung NO NASA RC	-	-	-	-	-	SM-RC-MBS-1	-
Toshiba AC	-	-	-	TO-AC-KNX-16/64	-	-	-
Toshiba RC	-	TO-RC-BAC-1	-	TO-RC-KNX-1i	-	TO-RC-MBS-1	-

	ASCII	BACnet	EnOcean	KNX	LonWorks	Modbus	OPC
Panasonic AW	-	-	-	PA-AW2-KNX-1	-	PA-AW2-MBS-1	-
Panasonic RC	-	-	-	PA-RC-KNX-II	-	-	-
Panasonic RC2	-	PA-RC2-BAC-1	-	PA-RC2-KNX-II	-	PA-RC2-MBS-1	-
Samsung NASA AC	-	SM-ACN-BAC-4/8/16/64	-	SM-ACN-KNX-4/8/16/64	-	SM-ACN-MBS-4/8/16/64 SM-RC2-MBS-1	-
Samsung NO NASA RC	-	-	-	-	-	SM-RC-MBS-1	-
Toshiba AC	-	-	-	TO-AC-KNX-16/64	-	-	-
Toshiba RC	-	TO-RC-BAC-1	-	TO-RC-KNX-II	-	TO-RC-MBS-1	-





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COSY WARM AND EFFICIENT – VAILLANT SNUGGLES UP WITH KNX

**KNX** **Vaillant**

**ise** Newsletter

Products Services Comp

**ISE SMART CONNECT MODBUS VAILLANT**

EASY ACCESS ON VAILLANTS GEOTHERM/3 HEAT PUMP

ISE SMART CONNECT MODBUS VAILLANT

**Vaillant**

**Gateway MP / KNX**

**UK24EIB**

UK24EIB is the EIBA-certified gateway from Belimo. It connects the Belimo MP-Bus with KNX. On the MP-Bus side, up to 8 MP actuators can be connected.

In the UK24EIB, the digital MP information of the control system and feedback is converted to KNX.

**Sensor connection**

One sensor can be connected per MP actuator. In this way, the analog signal of the sensor can be easily digitized with the Belimo actuator - and transferred to KNX via UK24EIB.

Suitable actuators can be selected from the [bus device selection tool](#).

**Interoperable operation**

The UK24EIB gateway does not perform any control functions. On the KNX side, there is also an KNX-capable interoperable controller that performs the control functions. It is connected with the UK24EIB gateway via KNX, through which it controls the MP actuators on the MP-Bus and also reads out the values of the connected sensors.

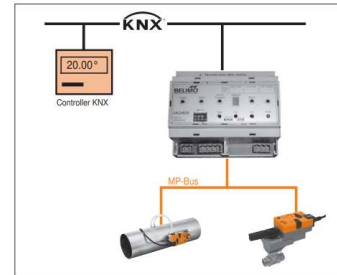
KNX capable controllers that function interoperably and faultlessly with the Belimo UK24EIB gateway are available on the market from various manufacturers (see [Interoperable Application](#)).



Application A9 - 0201

**Interoperable Applications UK24EIB\_KNX/EIB**

Belimo Gateway MP-KNX UK24EIB combined with an IRC Controller for KNX/EIB



This document is describing typical applications where a controller for KNX/EIB is used in conjunction with the Belimo Gateway UK24EIB and the corresponding MP actuators.



**KNX VAV-Compact volumetric flow controller with sensor interface**

Compact volumetric flow controller with integrated interface for KNX TP (S-Mode).

**Sensor interface**

One active sensor or one switching contact can be integrated per actuator in the network. This makes conventional sensors capable of communication in the simplest way imaginable.



**KNX actuators with sensor interface**

Actuator with integrated interface for KNX (S mode) for the motorisation of characterised control valves. It is connected by cable.



**Sensor interface**

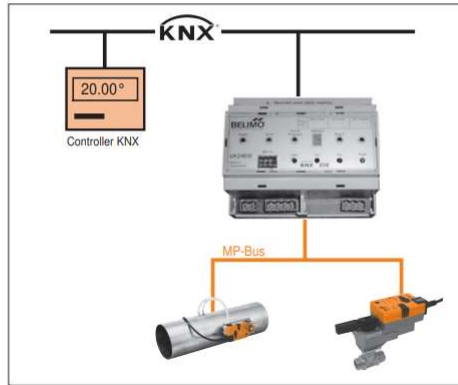
One passive or active sensor or one switching contact can be linked into the network for each actuator. This makes conventional sensors communications-capable in a very simple fashion.

## KNX HVAC

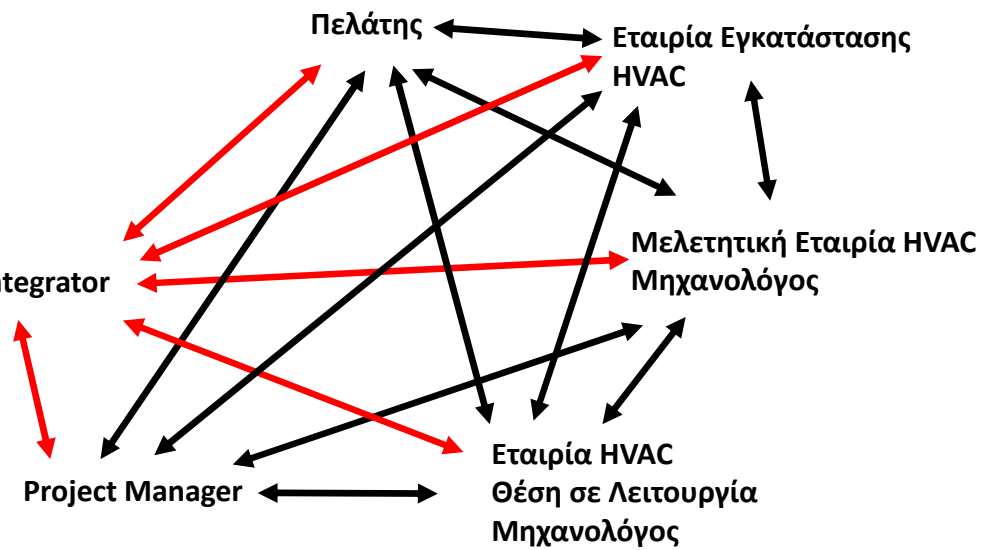
Application A9 - 0201

Interoperable Applications UK24EIB\_KNX/EIB

Belimo Gateway MP/KNX UK24EIB combined with an IRC Controller for KNX/EIB



This document is describing typical applications where a controller for KNX/EIB is used in conjunction with the Belimo Gateway UK24EIB and the corresponding MP actuators.



## Έλεγχος HVAC με KNX;

(και πως να τον κάνεις καλά...)



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*"Ένα εξαιρετικό σεμινάριο που αγγίζει σε βάθος το κομμάτι του HVAC με KNX. Πραγματικά ανεκτίμητης αξίας πρόγραμμα για οποιοδήποτε KNX System Integrator."*

Ιωάννης Κρουσταλάκης, Μηχανικός Αυτοματισμού, Esono Ltd