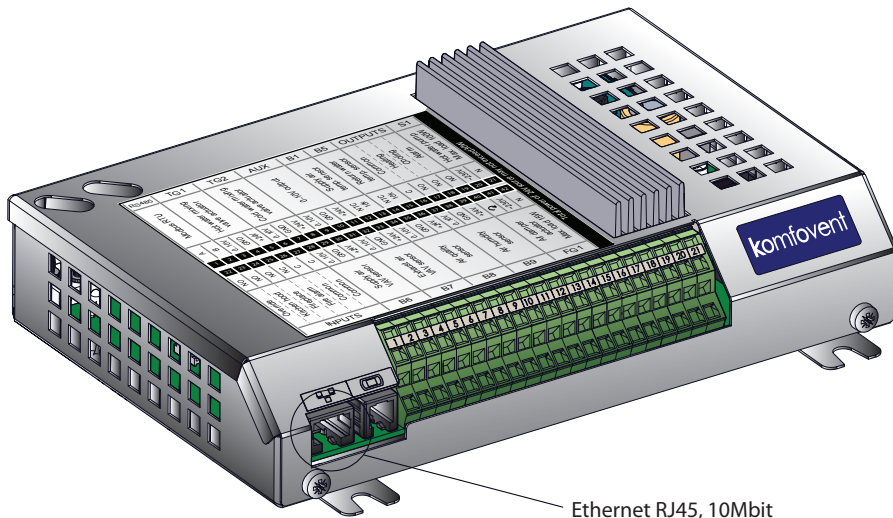


BACnet connection C6

BACNET CONNECTION AND SETTINGS

BACnet is a standard communication protocol for Building Automation and Control (BAC) networks that can be used to monitor and control Komfovent air handling units with C6 controller. The supported Data Link Layer is BACnet / IP.

BACnet protocol works via Ethernet interface, connection is provided to RJ-45 socket (Pic.1) on the C6 controller (CAT5 cable is recommended):



Picture 1. C6 controller board

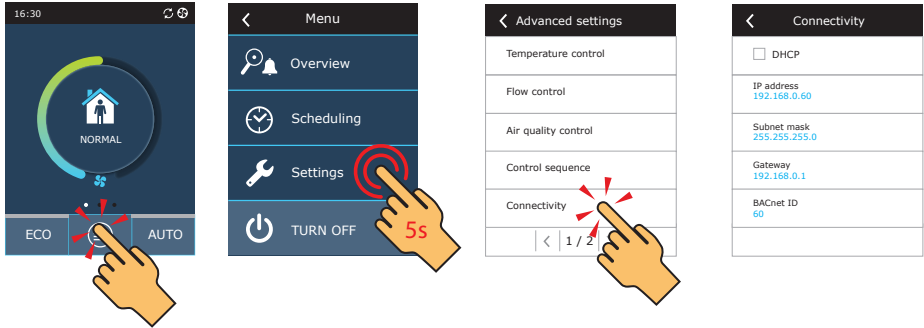
Below is default network settings of the C6 controller. These can be changed according to the building network software requirements. To do so, it is needed to connect a laptop to the integrated webserver of C6 controller:

CONNECTIVITY

DHCP	<input checked="" type="checkbox"/> Off	<input type="checkbox"/> On		
IP address	192	168	0	60
Subnet mask	255	255	255	0
Gateway	192	168	0	1
BACnet ID	60			
Modbus ID	254			
RS-485	19200 baud	▼	8E1	▼

Picture 2. Connectivity settings

C6 controller IP can also be viewed and changed on the control panel – from *Main menu* go to *Advanced settings*→*Connectivity*:



Picture 3. Connectivity settings on C6.1 control panel display

BACnet Interoperability Building Blocks Supported

Data sharing	DS-RP-B	Read Property
	DS-RPM-B	Read Property Multiple
	DS-WP-B	Write Property
Device management	DM-DCC-B	Device Communication Control
	DM-DDB-B	Dynamic Device Binding
	DM-DOB-B	Dynamic Object Binding
	DM-TS-B	Time Synchronization

Standard Object Types Supported:

Object type	Properties
Device	Object_Identifier, Object_Name, Object_Type, System_Status, Vendor_Name, Vendor_Identifier, Model_Name, Firmware_Revision, Application_Software_Version, Protocol_Version, Protocol_Revision, Protocol_Services_Supported, Protocol_Object_Types_Supported, Object_List, Max_APDU_Length_Accepted, Segmentation_Supported, APDU_Timeout, Number_Of_APDU_Retries, Device_Address_Binding, Database_Revision, Property_List; Description, Local_Date, Local_Time
Analog value	Object_Identifier, Object_Name, Object_Type, Present_Value, Status_Flags, Event_State, Out_Of_Service, Units, Property_List; Reliability
Binary value	Object_Identifier, Object_Name, Object_Type, Present_Value, Status_Flags, Event_State, Out_Of_Service, Property_List; Inactive_Text, Active_Text
Date value	Object_Identifier, Object_Name, Object_Type, Present_Value, Status_Flags, Property_List
Multi-state value	Object_Identifier, Object_Name, Object_Type, Present_Value, Status_Flags, Event_State, Out_Of_Service, Number_Of_States, Property_List; State_Text
Positive integer value	Object_Identifier, Object_Name, Object_Type, Present_Value, Status_Flags, Units, Property_List; Reliability
Time value	Object_Identifier, Object_Name, Object_Type, Present_Value, Status_Flags, Property_List

Objects:

Analog value			
Object name	Object instance	Present value	
		Range/values/units	Access
AWAY: setpoint	0	5.0 – 40.0 [°C]	W
NORMAL: setpoint	1	5.0 – 40.0 [°C]	W
INTENSIVE: setpoint	2	5.0 – 40.0 [°C]	W
BOOST: setpoint	3	5.0 – 40.0 [°C]	W
KITCHEN: setpoint	4	5.0 – 40.0 [°C]	W

Analog value			
Object name	Object instance	Present value	
		Range/values/units	Access
FIREPLACE: setpoint	5	5.0 – 40.0 [°C]	W
OVERRIDE: setpoint	6	5.0 – 40.0 [°C]	W
HOLIDAYS: setpoint	7	5.0 – 40.0 [°C]	W
ECO: minimum supply air temperature	8	5.0 – 40.0 [°C]	W
ECO: maximum supply air temperature	9	5.0 – 40.0 [°C]	W
AIR QUALITY: temperature setpoint	10	5.0 – 40.0 [°C]	W
INFO: supply temperature	11	[°C]	R
INFO: extract temperature	12	[°C]	R
INFO: outdoor temperature	13	[°C]	R
INFO: water temperature	14	[°C]	R
INFO: panel 1 temperature	15	[°C]	R
INFO: panel 2 temperature	16	[°C]	R
INFO: current supply fan intensity	17	[°C]	R
INFO: current extract fan intensity	18	[°C]	R
INFO: heat exchanger	19	[°C]	R
INFO: electric heater	20	[°C]	R
INFO: water heater	21	[°C]	R
INFO: water cooler	22	[°C]	R
INFO: DX unit	23	[°C]	R
EFFICIENCY/STATUS: SPI	24	[W/(m ³ /h)]	R
EFFICIENCY/STATUS: SPI (day)	25	[W/(m ³ /h)]	R

Binary value			
Object name	Object instance	Present value	
		Range/values/units	Access
CONTROL: ON/OFF status	0	0 – off 1 – on	W
CONTROL: ECO mode	1	0 – off 1 – on	W
CONTROL: AUTO mode	2	0 – off 1 – on	W
AWAY: heating	3	0 – off 1 – on	W
NORMAL: heating	4	0 – off 1 – on	W
INTENSIVE: heating	5	0 – off 1 – on	W
BOOST: heating	6	0 – off 1 – on	W
KITCHEN: heating	7	0 – off 1 – on	W
FIREPLACE: heating	8	0 – off 1 – on	W
OVERRIDE: heating	9	0 – off 1 – on	W
HOLIDAYS: heating	10	0 – off 1 – on	W
ECO: free heating/cooling	11	0 – off 1 – on	W
ECO: heating enable denied	12	0 – off 1 – on	W
ECO: cooling enable denied	13	0 – off 1 – on	W
AIR QUALITY: enabled	14	0 – disabled 1 – enabled	W
AIR QUALITY: heating	15	0 – off 1 – on	W
ALARMS: low supply air flow	16	0 – no 1 – yes	R
ALARMS: low extract air flow	17	0 – no 1 – yes	R
ALARMS: return water temperature low	18	0 – no 1 – yes	R
ALARMS: low supply air temperature	19	0 – no 1 – yes	R
ALARMS: high supply air temperature	20	0 – no 1 – yes	R
ALARMS: electric heater overheat	21	0 – no 1 – yes	R

Binary value				
Object name	Object instance	Present value		
		Range/values/units		Access
ALARMS: heat exchanger failure	22	0 – no	1 – yes	R
ALARMS: heat exchanger icing	23	0 – no	1 – yes	R
ALARMS: internal fire alarm	24	0 – no	1 – yes	R
ALARMS: external fire alarm	25	0 – no	1 – yes	R
ALARMS: temperature sensor failure	26	0 – no	1 – yes	R
ALARMS: controller failure	27	0 – no	1 – yes	R
ALARMS: service mode	28	0 – no	1 – yes	R
ALARMS: clogged air filters	29	0 – no	1 – yes	R

Date value				
Object name	Object instance	Present value		
		Range/values/units		Access
HOLIDAYS: from	0	2017-01-01 – 2035-12-31		W
HOLIDAYS: till	1	2017-01-01 – 2035-12-31		W

Multi-state value				
Object name	Object instance	Present value		
		Range/values/units		Access
CONTROL: auto mode control	0	1 – scheduling	2 – air quality	R
CONTROL: current mode	1	1 – standby 2 – away 3 – normal 4 – intensive 5 – boost 6 – kitchen	7 – fireplace 8 – override 9 – holiday 10 – auto 11 – off	W [2-5]
SCHEDULER: operation program	2	1 – stay at home 2 – working week	3 – office 4 – custom	W
SCHEDULER: next mode	3	1 – standby 2 – away 3 – normal	4 – intensive 5 – boost	R
SCHEDULER: next mode weekday	4	1 – today 2 – mo 3 – tu 4 – we	5 – th 6 – fr 7 – sa 8 – su	R
CONTROL: temperature control	5	1 – supply 2 – extract	3 – room 4 – balance	W
CONTROL: flow control	6	1 – CAV 2 – VAV	3 – DCV	W
CONTROL SEQUEENCE: stage 1	7	1 – none 2 – external coil		3 – electric heater
CONTROL SEQUEENCE: stage 2	8			4 – external DX unit
CONTROL SEQUEENCE: stage 3	9			W
SETTINGS: coil type	10	1 – hot water	2 – cold water	W
SETTINGS: language	11	1 – en 2 – lt 3 – ru 4 – pl 5 – sk 6 – de 7 – fr 8 – hu 9 – it	10 – ee 11 – nl 12 – lv 13 – pt 14 – se 15 – fi 16 – hr	W
SETTINGS: flow units	12	1 – m3/h	2 – l/s	W

Binary value			
Object name	Object instance	Present value	
		Range/values/units	Access
OVERRIDE: mode	13	1 – all time 2 – if on	3 – if off W
HOLIDAYS: microventilation	14	1 – 1 t. per day 2 – 2 t. per day	3 – 3 t. per day 4 – 4 t. per day W
AIR QUALITY: sensor type B8	15	1 – none	3 – VOC W
AIR QUALITY: sensor type B9	16	2 – CO2	4 – RH W
RESET SETTINGS	17	1 – none 2 – “away” 3 – “normal” 4 – “intensive” 5 – “boost” 6 – “holidays”	7 – “override” 8 – “kitchen” 9 – “fireplace” 10 – air quality 11 – eco 12 – advanced W

Positive integer value			
Object name	Object instance	Present value	
		Range/values/units	Access
CONTROL: maximum supply flow	0	[m ³ /h, l/s]	R
CONTROL: maximum extract flow	1	[m ³ /h, l/s]	R
CONTROL: maximum supply pressure	2	0 – 1000 [Pa]	W
CONTROL: maximum extract pressure	3	0 – 1000 [Pa]	W
CONNECTIVITY: IP address	4	0 – 4294967295	W
CONNECTIVITY: mask	5	0 – 4294967295	W
AWAY: supply flow	6	0.2 max – max [m ³ /h, l/s, Pa]	W
AWAY: extract flow	7	0.2 max – max [m ³ /h, l/s, Pa]	W
NORMAL: supply flow	8	0.2 max – max [m ³ /h, l/s, Pa]	W
NORMAL: extract flow	9	0.2 max – max [m ³ /h, l/s, Pa]	W
INTENSIVE: supply flow	10	0.2 max – max [m ³ /h, l/s, Pa]	W
INTENSIVE: extract flow	11	0.2 max – max [m ³ /h, l/s, Pa]	W
BOOST: supply flow	12	0.2 max – max [m ³ /h, l/s, Pa]	W
BOOST: extract flow	13	0.2 max – max [m ³ /h, l/s, Pa]	W
KITCHEN: supply flow	14	0.2 max – max [m ³ /h, l/s]	W
KITCHEN: extract flow	15	0.2 max – max [m ³ /h, l/s]	W
FIREPLACE: supply flow	16	0.2 max – max [m ³ /h, l/s]	W
FIREPLACE: extract flow	17	0.2 max – max [m ³ /h, l/s]	W
OVERRIDE: supply flow	18	0.2 max – max [m ³ /h, l/s]	W
OVERRIDE: extract flow	19	0.2 max – max [m ³ /h, l/s]	W
KITCHEN: timer	20	0 – 300 [min]	W
FIREPLACE: timer	21	0 – 300 [min]	W
OVERRIDE: timer	22	0 – 300 [min]	W
AIR QUALITY: air quality setpoint	23	0 – 2000 [ppm] 0 – 100 [%]	W
AIR QUALITY: humidity setpoint	24	0 – 100 [%]	W
AIR QUALITY: minimum intensity	25	0, 20 – 100 [%]	W
AIR QUALITY: maximum intensity	26	0, 20 – 100 [%]	W
AIR QUALITY: check period	27	1 – 24 [h]	W
ALARMS: active alarms count	28	0 – 10	W [39366 resets alarms]
ALARMS: alarm history count	29	0 – 50	R

Analog value			
Object name	Object instance	Present value	
		Range/values/units	Access
INFO: current supply flow	30	[m³/h, l/s]	R
INFO: current extract flow	31	[m³/h, l/s]	R
INFO: filters impurity	32	[%]	R
INFO: air dampers	33	[%]	R
INFO: supply pressure	34	[Pa]	R
INFO: extract pressure	35	[Pa]	R
INFO: air quality/humidity sensor 1	36	[ppm, %]	R
INFO: air quality/humidity sensor 2	37	[ppm, %]	R
INFO: panel 1 humidity	38	[%]	R
INFO: panel 2 humidity	39	[%]	R
INFO: panel 1 air quality	40	[ppm]	R
INFO: panel 2 air quality	41	[ppm]	R
EFFICIENCY/STATUS: power consumption	42	[W]	R
EFFICIENCY/STATUS: heater power	43	[W]	R
EFFICIENCY/STATUS: heat exchanger recovery	44	[W]	R
EFFICIENCY/STATUS: heat exchanger efficiency	45	[%]	R
EFFICIENCY/STATUS: energy saving	46	[%]	R
EFFICIENCY/STATUS: recovered energy (day)	47	[Wh]	R
EFFICIENCY/STATUS: recovered energy (month)	48	[Wh]	R
EFFICIENCY/STATUS: recovered energy (total)	49	[Wh]	R
CONSUMPTION: AHU (day)	50	[Wh]	R
CONSUMPTION: AHU (month)	51	[Wh]	R
CONSUMPTION: AHU (total)	52	[Wh]	R
CONSUMPTION: add. air heater (day)	53	[Wh]	R
CONSUMPTION: add. air heater (month)	54	[Wh]	R
CONSUMPTION: add. air heater (total)	55	[Wh]	R

Time value			
Object name	Object instance	Present value	
		Range/values/units	Access
SCHEDULER: next mode start time	0	00:00 – 24:00	R

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