komfovent

BACNET CONNECTION C6 / C6M

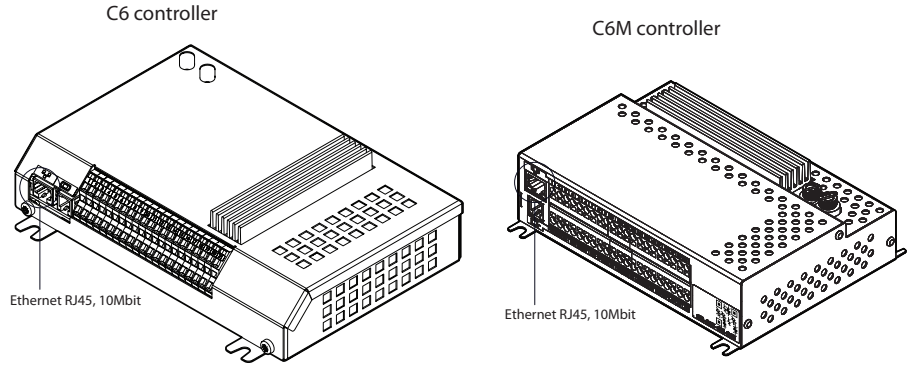
INSTALLATION AND SERVICE MANUAL

EN

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 / C6M 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 / C6M controller (CAT5 cable is recommended):



Picture 1. C6 and C6M controller boards

Below is default network settings of the C6 / C6M 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 / C6M controller:

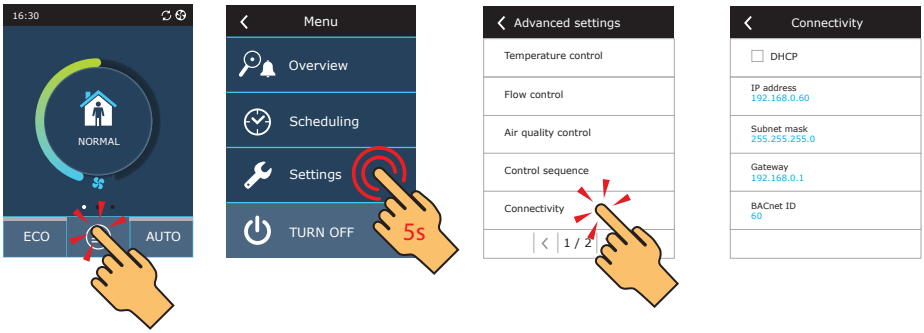
CONNECTIVITY

DHCP	☑ Off	☐ 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

To have a stable connection between BMS and AHU via BACnet network, at least 1s. polling time is recommended.

C6 / C6M 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; Incative_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
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

Analog value			
Object name	Object instance	Present value	
		Range/values/units	Access
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 intensivity	17	%	R
INFO: current extract fan intensivity	18	%	R
INFO: heat exchanger	19	%	R
INFO: electric heater	20	%	R
INFO: water heater	21	%	R
INFO: water cooler	22	%	R
INFO: DX unit	23	%	R
EFFICIENCY/STATUS: SPI	24	[W/(m³/h)]	R
EFFICIENCY/STATUS: SPI (day)	25	[W/(m³/h)]	R
THERMOSTAT 1: Temperature	26	5.0 – 40.0 [°C]	W
THERMOSTAT 1: Hysteresis	27	0.1 – 5.0 [°C]	W
THERMOSTAT 2: Temperature	28	5.0 – 40.0 [°C]	W
THERMOSTAT 2: Hysteresis	29	0.1 – 5.0 [°C]	W

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
ALARMS: heat exchanger failure	22	0 – no	1 – yes	R

Binary value				
Object name	Object instance	Present value		
		Range/values/units		Access
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
ALARMS: heat exchanger low efficiency	30	0 – no	1 – yes	R
ALARMS: air flow sensor failure	31	0 – no	1 – yes	R
INFO: alarm	32	0 – off	1 – on	R
INFO: heating	33	0 – off	1 – on	R
INFO: cooling	34	0 – off	1 – on	R
CLEAN FILTERS CALIBRATION	35	0 – no	1 – yes	W
THERMOSTAT 1: Enable	36	0 – no	1 – yes	W
THERMOSTAT 2: Enable	37	0 – no	1 – yes	W
ALARMS: humidity sensor failure	38	0 – no	1 – yes	R
ALARMS: communication error	39	0 – no	1 – yes	R
ALARMS: supply fan failure	40	0 – no	1 – yes	R
ALARMS: exhaust fan failure	41	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 SEQEUENCE: stage 1	7	1 – none 2 – external coil	3 – electric heater 4 – external DX unit	W
CONTROL SEQEUENCE: stage 2	8			W
CONTROL SEQEUENCE: stage 3	9			W

Multi-state value				
Object name	Object instance	Present value		
		Range/values/units		Access
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
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 2 – CO2	3 – VOC 4 – RH	W
AIR QUALITY: sensor type B9	16			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
ECO: heat recovery control	18	1 – Auto 2 – Constant	3 – Non stop	W
THERMOSTAT 1: output	19	1 – Heating	2 – Cooling	W
THERMOSTAT 1: output type	20	1 – NO	2 – NC	W
THERMOSTAT 2: output	21	1 – Heating	2 – Cooling	W
THERMOSTAT 2: output type	22	1 – NO	2 – NC	W

Positive integer value			
Object name	Object instance	Present value	
		Range/values/units	Access
CONTROL: maximum supply flow	0	[m³/h, l/s]	R
CONTROL: maximum extract flow	1	[m³/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* [m³/h, l/s, Pa]	W
AWAY: extract flow	7	0.2 *max* – *max* [m³/h, l/s, Pa]	W
NORMAL: supply flow	8	0.2 *max* – *max* [m³/h, l/s, Pa]	W
NORMAL: extract flow	9	0.2 *max* – *max* [m³/h, l/s, Pa]	W
INTENSIVE: supply flow	10	0.2 *max* – *max* [m³/h, l/s, Pa]	W
INTENSIVE: extract flow	11	0.2 *max* – *max* [m³/h, l/s, Pa]	W
BOOST: supply flow	12	0.2 *max* – *max* [m³/h, l/s, Pa]	W
BOOST: extract flow	13	0.2 *max* – *max* [m³/h, l/s, Pa]	W
KITCHEN: supply flow	14	0.2 *max* – *max* [m³/h, l/s]	W
KITCHEN: extract flow	15	0.2 *max* – *max* [m³/h, l/s]	W
FIREPLACE: supply flow	16	0.2 *max* – *max* [m³/h, l/s]	W
FIREPLACE: extract flow	17	0.2 *max* – *max* [m³/h, l/s]	W
OVERRIDE: supply flow	18	0.2 *max* – *max* [m³/h, l/s]	W

Positive integer value			
Object name	Object instance	Present value	
		Range/values/units	Access
OVERRIDE: extract flow	19	0.2 *max* – *max* [m³/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 intensivity	25	0, 20 – 100 [%]	W
AIR QUALITY: maximum intensivity	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
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
INFO: extract humidity	56	[%]	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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