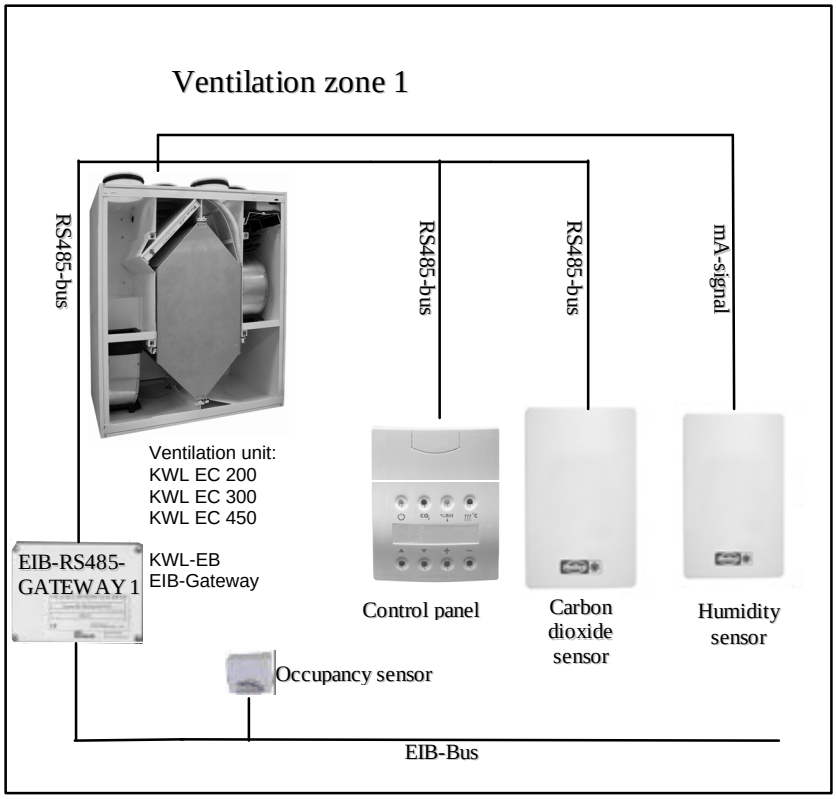
GENERAL

Ventilation unit with KWL EC.. Pro control may be equipped with optional KWL-EB. This allows the ventilation unit to be connected to the EIB network. Equipped with KWL-EB, the ventilation unit provides the following state signals, among others: status of the post-heating radiator and fans, and readouts from temperature, carbon dioxide and other sensors. You can also set the ventilation unit to various states and define setpoints for supply air temperature etc. KWL-EB allows for time- and occupancy-based control of ventilation unit. It also enables the development of various control room applications. KWL-EB works in the EIB environment.

SYSTEM DESCRIPTION



KWL-EB is an optional device that enables the control of the ventilation unit and the receipt of state signals from the EIB network.

EIB-RS485-GATEWAY operates in the same way as all the control panels of the ventilation unit. The command last received by the ventilation unit is in force irrespective of whether it has come from a control panel or the EIB-RS485-GATEWAY.

Control panels, carbon dioxide sensors and humidity sensors may have been connected to the ventilation unit to regulate ventilation efficiency.

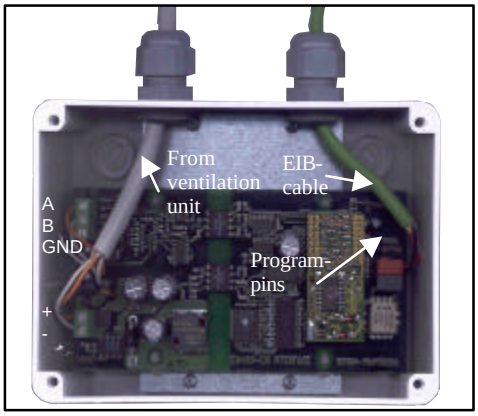
The optional devices (sensors) are connected to the automated control system of ventilation unit and not directly to the EIB network.

The occupancy sensor connected to the EIB network may be used to start and stop the unit in accordance with desired time delays.

TECHNICAL DATA KWL-EB (EIB-RS485 GATEWAY)

Supply voltage	21VDC (from the ventilation unit)
Size:	Casing 120x160x80 (height x width x depth)
Operating temperature	0…50 °C
Mounting	near the ventilation unit with screw fastening
Applicability	SOFTWARE VERSION 000804 or newer. File: PKC0001.VD2
Registration n:o	199/5839/02
Order number	9416

MOUNTING



KWL-EB is mounted as close to the ventilation unit as possible. The wiring between the ventilation unit and the EIB-RS485 GATEWAY is done with NOMAK 2x2x0,6+0,5 cable, for instance.

- Electrical connections are brought to the terminal block on the casing. Supply voltage and RS485 cables from the ventilation unit are led to the same terminal block. EIB-cable can be installed to bus connector pins.
- The casing is mounted on the wall by attaching screws throught the mounting holes at the bottom of the casing.
- KWL-EB can be programmed by short-cutting **program-pins** from the electric board.
- For connection instructions, see the cover of the casing.

COMMUNICATION OBJECTS KWL-EB (EIB-RS485-GATEWAY)

Obj	Function	Name	Type	Flag	**Description**
0	8-bit Value	Control Interval	1 Byte EIS 6	C,R,T	Control Interval Status (1…15 minutes) CO_2 / R. H.: this status object serves for status transmission of the control interval time. Control Interval is minimum time for changing fan speed for automatic adjustments.
1	Water=ON /Electrical=Off	Heating type	1 Bit EIS 1	C,R,T	Heater type Water or Electric (1=Water / 0=Electric).
2	On/Off	Ventilation Unit	1 Bit EIS 1	C,R,W,T	Ventilation Unit ON / OFF: (1=ON / 0=OFF) serves as main command and for status transmission.
3	Ventilation unit OFF	Emergency Alarm	1 Bit EIS 1	C,W,T	Emergency Alarm (Ventilation Unit OFF): when receiving a logical 1 via this object, the ventilation unit is switched OFF.
4	On/Off	Presence	1 Bit EIS 1	C,W,T	Presence/No Presence (Ventilation Unit ON/OFF): when receiving a logical 1 via this object, the ventilation unit is switched ON, when receiving a logical 0 via this object, the ventilation unit is switched OFF. This telegram may come either from a presence detector or a presence switch/pushbutton.
5	On/Off	Adjustment of CO2	1 Bit EIS 1	C,R,W,T	Status of CO_2 Adjustment:1=ON / 0=OFF.
6	On/Off	Adjustment of RH	1 Bit EIS 1	C,R,W,T	Status of RH Adjustment:1=ON / 0=OFF.
7	On/Off	Adjustment of After heater	1 Bit EIS 1	C,R,W,T	Status of After heater:1=ON / 0=OFF.
8	Open / Close	Status Heat Recovery Bypass	1 Bit EIS 1	C,R,T	Status Heat Recovery Bypass: Open = 1 /Closed = 0
9	Yes / No	Filter Maintenance	1 Bit EIS 1	C,R,T	Filter Maintenance: Maintenance=1
10	8-bit Fault	Fault of Ventilation Unit	1 Byte NON EIS	C,R,T	Faults of Ventilation Unit: 5 Supply air temperature sensor failure 6 CO_2 Failure (too high CO_2-concentration) 7 Outdoor air temperature sensor failure 8 Exhaust air temperature sensor failure 9 Water heating freezing protection 10 Extract air temperature sensor failure
11	8-bit Value	Fan Speed Status Value	1 Byte EIS 6	C,R,T	Fan Speed Status Value: the fan speed status is transmitted as a value between 31 and 255. Speed 1=31, speed 2=63, speed 3=95, speed 4=127, speed 5=159, speed 6=191, speed 7=223 and speed 8=255.
12	8-bit Value	Fan Speed Setpoint Value	1 Byte EIS 6	C,W,T	Fan Speed Setpoint Value: the fan speed setpoint value is transmitted as a value between 0 and 255. Speed is controlled in 8 steps: speed 1 value 0…47, speed 2 value 48…78, speed 3 value 79…111, speed 4 value 112…141, speed 5 value 142…174, speed 6 value 175…205, speed 7 value 206…238 and speed 8 value 239…255. This object serves for control transmission.
13	8-bit Value	Minimum Fan Speed Setpoint Value	1 Byte EIS 6	C,R,W,T	Minimum Fan Speed Setpoint Value: the minimum fan speed setpoint value is transmitted as a value between 31 and 255. Speed is controlled in 8 steps: speed 1 value 0…47, speed 2 value 48…78, speed 3 value 79…111, speed 4 value 112…141, speed 5 value 142…174, speed 6 value 175…205, speed 7 value 206…238 and speed 8 value 239…255. This object serves for control and for status transmission.
14	8-bit Value	Control Interval CO2 / RH	1 Byte EIS 6	C,W,T	Control Interval (1…15 minutes) CO_2 / R. H.: this object serves for control transmission of the control interval time. Control Interval is minimum time for changing fan speed for automatic adjustments.
15	8-bit per cent Value	Relative Humidity Sensor 1	1 Byte EIS 6	C,R,T	Relative Humidity [%] from Sensor 1: serves for transmission of the sensor value via EIB (the sensor is connected to the ventilation unit and not to the EIB).
16	8-bit per cent Value	Relative Humidity Sensor 2	1 Byte EIS 6	C,R,T	Relative Humidity [%] from Sensor 2: serves for transmission of the sensor value via EIB (the sensor is connected to the ventilation unit and not to the EIB).
17	8-bit per cent Value	Limit Value for Relative Humidity	1 Byte EIS 6	C,R,W,T	Limit Value for Relative Humidity [%]: Humidity limit value has possible setpoint values 10%…80%. This object serves for control and status transmission of the limit value for relative humidity.
18	16-bit CO2 Value	Max. Value for CO2 Consentration	2 Byte EIS 5	C,R,T	CO_2 Concentration (max. Value): serves for transmission of the sensor value via EIB. If several CO_2 sensors are connected to the ventilation unit, the highest measured value will be transmitted (the sensors are connected to the ventilation unit and not to the EIB).
19	16-bit CO2 Value	Limit Value for CO2 Consentration	2 Byte EIS 5	C,R,W,T	Limit Value for CO_2 Concentration:CO_2 Concentration limit value has possible setpoint values 500ppm…2000ppm. This object serves for control and status transmission of the limit value for CO_2 Concentration.
20	16-bit Grad Celsius Value	Outdoor Air Temperature	2 Byte EIS 5	C,R,T	Outdoor Air Temperature [°C]: serves for transmission of the sensor value via EIB (the sensor is connected to the ventilation unit and not to the EIB).
21	16-bit Grad Celsius Value	Extract Air Temperature	2 Byte EIS 5	C,R,T	Extract Air Temperature [°C]: serves for transmission of the sensor value via EIB (the sensor is connected to the ventilation unit and not to the EIB).
22	16-bit Grad Celsius Value	Exhaust Air Temperature	2 Byte EIS 5	C,R,T	Exhaust Air Temperature [°C]: serves for transmission of the sensor value via EIB (the sensor is connected to the ventilation unit and not to the EIB).
23	16-bit Celsius Value	Supply Air Temperature	2 Byte EIS 5	C,R,T	Supply Air Temperature [°C]: serves for transmission of the sensor value via EIB (the sensor is connected to the ventilation unit and not to the EIB).
24	16-bit Celsius Value	Supply Air Temperature Status of Setpoint Value	2 Byte EIS 5	C,R,W,T	Supply Air Temperature Setpoint Value [10°C…30°C]: serves for control and status transmission of the setpoint value for Supply Air Temperature.
25	16-bit Celsius Value	Setpoint Value Defrost Temperature of Heat Recovery	2 Byte EIS 5	C,R,W,T	Setpoint Value Defrost Temperature of Heat Recovery Unit [-2°C…5°C]: serves for control and status transmission of the setpoint value for defrost temperature.

26	16-bit Celsius Value	Hysteresis Value Defrost Temperature of Heat Recovery	2 Byte EIS 5	C,R,W,T	Hysteresis Value Defrost Temperature of Heat Recovery Unit [1°C…8°C]: serves for control and status transmission of the hysteresis value of the defrost temperature.
27	16-bit Celsius Value	Preheater Temperature Setpoint Value	2 Byte EIS 5	C,R,W,T	Preheater Temperature Setpoint Value [-10°C…+7°C]: serves for control and status transmission of the setpoint value of the preheater temperature.
28	16-bit Celsius Value	Heat Recovery Bypass Setpoint	2 Byte EIS 5	C,R,T	Heat Recovery Bypass Setpoint [8ºC…12ºC]. Serves for control and status transmission of the setpoint value of the heat recovery bypass.
29	On / Off	Enhancement Mode	1 Bit EIS 1	C,R,T	Enhancement mode (1=ON, 0=OFF). Status of fireplace switch.
30	On / Off	Preheating State	1 Bit EIS 1	C,R,T	Preheating State (1=ON, 0=OFF). Status of preheater.
31	On / Off	Supply Fan State	1 Bit EIS 1	C,R,T	Supply Fan State (0=ON, 1=OFF). Status of supply air fan.
32	On / Off	Exhaust Fan State	1 Bit EIS 1	C,R,T	Exhaust Fan State (0=ON, 1=OFF). Status of exhaust air fan.
33	8-bit Value Speed	Maximum Fan Speed Setpoint Value	1 Byte EIS 6	C,R,W,T	Maximum Fan Speed Setpoint Value: the fan speed status is transmitted as a value between 31 and 255. Speed is controlled in 8 steps: speed 1 value 0…47, speed 2 value 48…78, speed 3 value 79…111, speed 4 value 112…141, speed 5 value 142…174, speed 6 value 175…205, speed 7 value 206…238 and speed 8 value 239…255. This object serves for control and for status transmission.

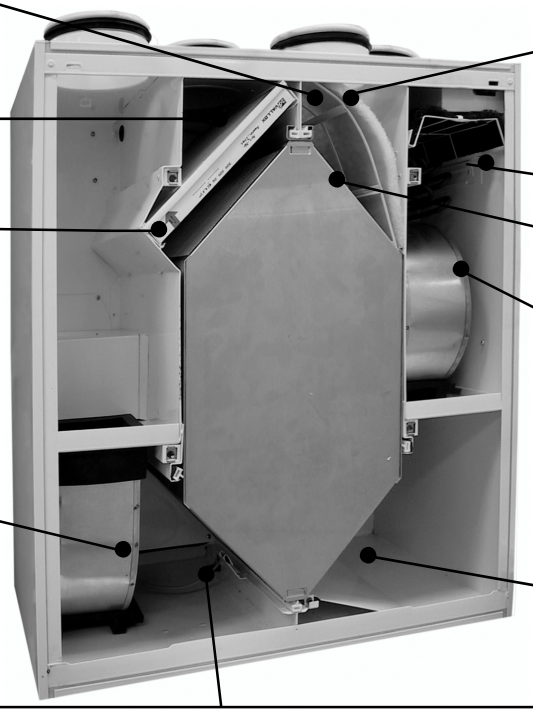
PARAMETERS

Nr.	Meaning	Range/Dimension Default-Value (thick)	Description
	Card „Configuration“		
1	Number of R.H. Sensors	**0**, 1, 2	If the number of sensors for relative humidity is 0, then the comm.-objects 15, 16 and 17 will not be displayed in the ETS menue of the comm.-objects. If the number is 1, then comm.-object 16 will not be displayed.
2	CO_2 Sensor connected:	Yes, **No**	If the parameter is set to „No“ (no CO_2 Sensor is connected to the ventilation unit), then comm.-objects 18 and 19 will not be displayed in the ETS menue of the comm.-objects.
3	Pre-Heater existing:	Yes, **No**	If the parameter is set to „No“ (no preheater existing in the ventilation unit), then comm.-object 27 and 30 will not be displayed in the ETS menue of the comm.-objects.
4	Ventilation Unit ON-Delay	**0**, 3, 6, 9, 12, 15 min	This parameter defines the time delay after which the ventilation unit will be switched ON when a telegram with the presence object (nr. 5) set to logical 1 is received by the ventilation unit. When a second telegram with the presence object (nr. 5) set to logical 0 will be received before the delay time is over, then the ventilation unit will remain switched OFF.
5	Ventilation Unit OFF-Delay	0, 3, 6, 9, 12, **15** min	This parameter defines the time delay after which the ventilation unit will be switched OFF when a telegram with the presence object (nr. 5) set to logical 0 is received by the ventilation unit. When a second telegram with the presence object (nr. 5) set to logical 1 will be received before the delay time is over, then the ventilation unit will remain switched ON.
	Card „Data Transmission“		
1	Status/Value Transmission on Change of Status/Value:	**Yes**, No	A changed value or status will only be transmitted when this parameter is set to „Yes“.
2	Cyclic Status/Value Transmission:	Yes, **No**	A cyclic transmission of status and values will only take place when this parameter is set to „Yes“.
3	Transmission Cycle Time:	1, 2, 5, 10, 15, **30** min.	This parameter defines the time after which a status/value is transmitted again.
4	Delta Temperature for Transmission of new Value:	**1**, 2, 3, 4, 5 K	This parameter define the difference between the last transmitted value and the actual value needed for a new transmission of the value.
5	Delta CO_2 Concentration for Transmission of new Value:	10, 20, 30, **50**, 75, 100 ppm	This parameter define the difference between the last transmitted value and the actual value needed for a new transmission of the value.
6	Delta Relative Humidity for Transmission of new Value:	1, 2.5, **5**, 7.5, 10 %	This parameter define the difference between the last transmitted value and the actual value needed for a new transmission of the value.
7	Status/Value Transmission on Bus Voltage Recovery:	Yes, **No**	All status values and analogue values will be transmitted after a gateway restart or after bus voltage recovery only when this parameter is set to „Yes“.
8	Waiting Time before next Status/Value Transmission:	**10**, 30, 60 s	This parameter will be displayed in the ETS menu only when parameter 7 was set to „Yes“. It defines the time between to telegrams sent after a gateway restart or a bus voltage recovery to update status and value information.

COMMUNICATION OBJECTS FOR DIFFERENT VENTILATION UNITS (factory settings)

Obj	Name	HELIOS KWL EC.. Pro
14	Control Interval CO2 / RH	10
24.	Supply Air Temperature Status of Setpoint Value	20ºC
25.	Setpoint Value Defrost Temperature of Heat Recovery	3ºC
26.	Hysteresis Value Defrost Temperature of Heat Recovery	3ºC
27.	Preheater Temperature Setpont Value	5ºC

COMMUNICATION OBJECTS AND CORRESPONDING VENTILATION UNIT FUNCTIONS



Obj 27. Preheater Temperature Setpoint Value
Obj 30. Preheating State

Obj 23. Supply Air Temperature
Obj 24. Supply air Temperature Status of Setpoint Value

Obj 9. Filter Maintenance

Obj 11. Fan Speed Status Value
Obj 12. Fan Speed Setpoint Value
Obj 13. Minimum Fan Speed Setpoint Value
Obj 32. Exhaust Fan State
Obj 33. Maximum Fan Speed Setpoint Value

Obj 22. Exhaust Air Temperature

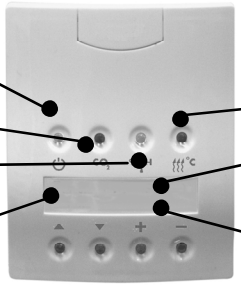
Obj 20. Outdoor Air Temperature

Obj 1. Heating type

Obj 11. Fan Speed Status Value
Obj 12. Fan Speed Setpoint Value
Obj 13. Minimum Fan Speed Setpoint Value
Obj 31. Supply Fan State
Obj 33. Maximum Fan Speed Setpoint Value

Obj 8. Status Heat Recovery Bypass
Obj 28. Heat Recovery Bypass Setpoint

Obj 21. Extract Air Temperature
Obj 25. Setpoint Value Defrost Temperature of Heat Recovery
Obj 26. Hysteresis Value Defrost Temperature of Heat Recovery



Control panel

Obj 2. Ventilation Unit

Obj 5. Adjustment Of CO2

Obj 6. Adjustment of RH

Obj 23. Supply Air Temperature
Obj 24. Supply Air Temperature Status of Setpoint Value

Obj 7. Adjustment of Afterheater

Obj 9. Filter Maintenance

Obj 11. Fan Speed Status Value.
Obj 12. Fan Speed Setpoint Value

Carbon dioxide sensor

Obj 18. Max. Value for CO2-Consentration
Obj 19. Limit Value for CO2-Consentration

Humidity sensor

Obj 15. Relative Humidity Sensor 1
Obj 16. Relative Humidity Sensor 2
Obj 17. Limit Value for Relative Humidity