

eBUS Specification

Application Layer – OSI 7

Vaillant specific extensions

V0.2.0

2010-03

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1 General

1.1 Disclaimer

This document has been created by collecting the information of users of eBUS heating systems. It is not an official specification revealed or approved by any company.

All use of this information is done on your own risk.

3 Vaillant Commands (Service B5h)

3.1 B5h 04h - Get Data Block

Name:	Get Data Block (B5h 04h)
Description:	The Get Data Block command is used for requesting specific data from other devices.
Comm. Load:	

Master/ Slave Byte- No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
M1	QQ	Source address					
M2	ZZ	Target address					
M3	PB = B5h	Vaillant command					
M4	SB = 04h	Get Date/Time					
M5	NN = 01h	Length of data					
M6	00h	Data Block Identifier					
M7	CRC						
S1	ACK						
S2	NN = 0Ah	Length of data					
...							

3.1.1 Block 00h - Date/Time

Name: **Get Data Block Date/Time (B5h 04h – Block 00h)**

Description:

Comm. Load:

Master/ Slave Byte- No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
M1	QQ	Source address					
M2	ZZ	Target address					
M3	PB = B5h	Vaillant command					
M4	SB = 04h	Get Data Block					
M5	NN = 01h	Length of data					
M6	DB = 00h	Block 00h (Date/Time)					
M7	CRC						
S1	ACK						
S2	NN = 0Ah	Length of data					
S3	00h 01h 02h 03h	DCF77 status: no reception reception synchronized data valid			BYTE		
S4	ss	Seconds	Sec	0..59	BCD		
S5	min	Minutes	Min	0..59	BCD		
S6	hh	Hours	Hour	0..59	BCD		
S7	dd	Day		1..31	BCD		
S8	mm	Month		1..12	BCD		
S9	ww	Weekday		1..7	BCD		
S10	yy	Year		0..99	BCD		
S11	TA_L	Outside temperature	°C	-50,0 – 50,0	DATA2b [1/256]		
S12	TA_H						
S13	CRC						
M8	ACK						
M9	SYN						

3.1.2 Block 01h - Unknown

Name: Get Data Block Date/Time (B5h 04h – Block 01h)

Description:

Comm. Load:

Master/ Slave Byte- No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
M1	QQ	Source address					10h
M2	ZZ	Target address					26h
M3	PB = B5h	Vaillant command					B5h
M4	SB = 04h	Get Data Block					04h
M5	NN = 01h	Length of data					01h
M6	DB = 01h	Block 01h					01h
M7	CRC						D8h
S1	ACK						00h
S2	NN = 09h	Length of data					09h
S3							19h
S4							04h
S5							00h
S6							00h
S7							02h
S8							05h
S9							00h
S10							00h
S11							00h
S12	CRC						2Ch
M8	ACK						00h
M9	SYN						AAh

3.1.3 Block 09h – Unknown

Name: Get Unknown (B5h 04h - Block 09h)

Description: This command regularly is sent to all slaves

Comm. Load:

Master/ Slave Byte- No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
M1	QQ	Source address					VRS620
M2	ZZ	Target address					23h 25h 26 50 EC
M3	PB = B5h	Vaillant command					B5h B5h
M4	SB = 04h	Get Data Block					04h 04h
M5	NN = 01h	Length of data					01h 01h
M6	DB = 09h	Block 09h					09h 09h
M7	CRC						CEh DAh
S1	ACK						00h 00h
S2	NN = 0Ah	Length of data					0Ah 0Ah
S3							14h 37h
S4							00h 00h
S5							00h 00h
S6							00h 00h
S7							06h 03h
S8							16h 16h
S9							00h 00h
S10							0Fh 0Fh
S11							4Bh 5Ah
S12							00h 00h
S13	CRC						80h 4Eh
M8	ACK						00h 00h
M9	SYN						AAh AAh

3.1.4 Block 0Dh– Unknown

Name: Get Unknown (B5h 04h - Block 0Dh)

Description: This command regularly is sent to all slaves

Comm. Load:

Master/ Slave Byte- No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
M1	QQ	Source address					10h
M2	ZZ	Target address					23h 25h 26 50 EC
M3	PB = B5h	Vaillant command					B5h
M4	SB = 04h	Get Data Block					04h
M5	NN = 01h	Length of data					01h
M6	DB = 0Dh	Block 0Dh					0Dh
M7	CRC						CAh
S1	ACK						00h
S2	NN = 05h	Length of data					05h
S3							00h
S4							00h
S5							00h
S6							80h
S7							00h
S8	CRC						4Ch
M8	ACK						00h
M9	SYN						AAh

3.1.5 Block 0Fh – Unknown

Name: Get Unknown (B5h 04h - Block 0Fh)

Description:

Comm. Load:

Master/ Slave Byte- No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
M1	QQ	Source address					10h
M2	ZZ	Target address					ECh
M3	PB = B5h	Vaillant command					B5h
M4	SB = 04h	Get Data Block					04h
M5	NN = 01h	Length of data					01h
M6	DB = 0Fh	Block 0Fh					0Fh
M7	CRC						C7h
S1	ACK						00h
S2	NN = 0Ah	Length of data					0Ah
S3-4	SP1	Service water temperature (boiler top sensor)	°C		DATA2c [1/16]		Speicherfühler (SP1)
S5-6	SP2	Service water temperature (boiler bottom sensor)	°C		DATA2c [1/16]		Speicherfühler (SP2)
S7	XX = 06h						21h
S8	XX = 16h						FFh
S9	XX = 00h						21h
S10	XX = 0Fh						FFh
S11	XX = 4Bh	(01h = BW_aktiv?)					00h
S12	XX = 00h	(02h = BW_aktiv?)					00h
S13	CRC						E4h
M8	ACK						00h
M9	SYN						AAh

3.1.6 Block 11h – Unknown

Name: Get Unknown (B5h 04h - Block 11h)

Description:

Comm. Load:

Master/ Slave Byte- No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
M1	QQ	Source address					VRS620
M2	ZZ	Target address					ECh
M3	PB = B5h	Vaillant command					B5h
M4	SB = 04h	Get Data Block					04h
M5	NN = 01h	Length of data					01h
M6	DB = 11h	Block 11h					11h
M7	CRC						D9h
S1	ACK						00h
S2	NN = 06h	Length of data					06h
S3							50h
S4							0Ch
S5							08h
S6							50h
S7							07h
S8							03h
S9	CRC						B2h
M8	ACK						00h
M9	SYN						AAh

3.1.7 Block 12h – Unknown

Name: **Get Unknown (B5h 04h - Block 12h)**

Description:

Comm. Load:

Master/ Slave Byte- No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
M1	QQ	Source address					VRS620
M2	ZZ	Target address					ECh
M3	PB = B5h	Vaillant command					B5h
M4	SB = 04h	Get Data Block					04h
M5	NN = 01h	Length of data					01h
M6	DB = 12h	Block 12h					12h
M7	CRC						DAh
S1	ACK						00h
S2	NN = 0Ah	Length of data					0Ah
S3-4	SP1	Sun collector temperature	°C		DATA2c [1/16]		Kollektorfühler (KOL1)
S5							00h
S6							67h 6Eh 6F (S6+S7: Laufzeit Solarpumpe in Std WORD ?)
S7							0Bh
S8							00h
S9							80h
S10							00h
S11							00h
S12							00h
S13	CRC						
M8	ACK						00h
M9	SYN						AAh

3.2 B5h 05h – Burner Operational Data

Name:	Burner Operational Data (B5h 05h)
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Description:	This Broadcast informs about the operational data of the burner control unit. It seems to be a Vaillant specific variant of Service 08h 01h.
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Comm. Load:	Cycle rate: 1/10s
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Master/ Slave Byte-No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
M1	QQ	Source address					
M2	ZZ = FEh	Target address					
M3	PB = B5h	Vaillant command					
M4	SB = 05h	Burner Operational Data?					
M5	NN = 02h	Length of data					
M6	xx = 04h xx = 29h						unknown
M7	yy = 00h						unknown
M8	CRC						
M9	SYN						

Master/ Slave Byte-No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
M1	QQ	Source address					VRS620
M2	ZZ = FEh	Target address					
M3	PB = B5h	Vaillant command					
M4	SB = 05h	Burner Operational Data					
M5	NN = 04h	Length of data					
M6	xx = 27h	(unknown)					unknown
M7		Bit0 = BW_load			BYTE		00h, 01h This bit is active when service water is loaded.
M8	VT	Lead water temperature	°C	0-89	CHAR	5Ah	Vorlauftemperatur HK1 VF1-Fühler
M9		Bit0 = BW_load			BYTE		00h, 01h This bit seems to be synchronous to M7 Bit0.
M10	CRC						
M11	SYN						

3.3 B5h 06h - Unknown Broadcast 2

Name: Unknown Broadcast 2 (B5h 06h)

Description:

Comm. Load:

Master/ Slave Byte- No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
M1	QQ	Source address					
M2	ZZ = FEh	Target address					Broadcast
M3	PB = B5h	Vaillant command					
M4	SB = 06h	Unknown broadcast 2					
M5	NN = 02h	Length of data					
M6	xx = 00h						unknown
M7	yy = 00h						unknown
M8	CRC						
M9	SYN						

Master/ Slave Byte- No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
M1	QQ	Source address					
M2	ZZ = FEh	Target address					Broadcast
M3	PB = B5h	Vaillant command					
M4	SB = 06h	Unknown broadcast 2					
M5	NN = 01h	Length of data					
M6	xx = 01h						unknown
M7	CRC						
M8	SYN						

3.4 B5h 09h - Get Solar Data

Name:	Get Solar Data Block (B5h 09h)
Description:	The Get Solar Data Block command is used for requesting specific data from other solar devices.
Comm. Load:	

3.4.1 Block 0Dh - Unknown

Name: Get Solar Data Block (Service B5h 09h - Block 0Dh)

Description:

Comm. Load:

Master/ Slave Byte- No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
M1	QQ	Source address					
M2	ZZ	Target address					ECh
M3	PB = B5h	Vaillant command					
M4	SB = 09h	Get Solar Data Block					
M5	NN = 03h	Length of data					
M6	DB = 0Dh	Block 0Dh: Temp. Sensors					
M7	P1 = xx1h	Sensor: 00h: water basin 1] 01h: water basin 2 02h: water basin 3 03h: Collector 1 04h: Collector 2 05h: Gain	°C °C °C °C °C °C				SP1 SP2 SP3 Kol1 Kol2 Ertrag
M8	P2 = xx2h	Parameter 2					unknown
M9	CRC						
S1	ACK						
S2	NN = 03h	Length of data					
S3	D_L	Sensor Value			DATA2c [1/16]		
S4	D_H						
S5	00h AAH	sensor connected no sensor connected			CHAR		
S6	CRC						
M10	ACK						
M11	SYN						

3.4.2 Block 18h - Unknown

Name: Get Solar Data Block (Service B5h 09h - Block 18h)

Description: This command

Comm. Load:

Master/ Slave Byte- No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
M1	QQ	Source address					VRS620
M2	ZZ	Target address					26h
M3	PB = B5h	Vaillant command					B5h
M4	SB = 09h	Get Solar Data Block					09h
M5	NN = 01h	Length of data					01h
M6	DB = 18h	Block 18h					18h
M7	CRC						3Fh
S1	ACK						00h
S2	NN = 0Ah	Length of data					0Ah
S3							00h
S4							00h
S5							00h
S6							00h
S7							00h
S8							00h
S9							00h
S10							00h
S11							00h
S12							00h
S13	CRC						9Fh
M8	ACK						00h
M9	SYN						AAh

3.5 B5h 10h - Operational Data from Room Controller to Burner Control Unit

Name:	Operational Data from Room Controller to Burner Control Unit (B5h 10h)
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Description:

Comm. Load:

Master/ Slave Byte-No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
M1	QQ	Source address					
M2	ZZ	Target address					
M3	PB = B5h	Vaillant command					
M4	SB = 10h	Operational Data from Room Controller to Burner Control Unit					
M5	NN = 09h	Length of data					
M6	xx ₁						unknown, always 00h
M7	xx ₂						unknown, always 00h
M8	LT	Lead water target temperature (Vorlaufemperatur)	°C	0 – 100	DATA1c		
M9	ST	Service water target temperature	°C	0 – 100	DATA1c		
M10	xx ₃						unknown, always FFh
M11	xx ₄						unknown, always FFh
M12	xx ₅ = 00h = 01h = 04h = 05h = 40h = 41h = 44h = 45h				(BIT ?)		unknown
M13	xx ₆						unknown, always FFh
M14	xx ₇						unknown, always 00h
M15	CRC						
S1	ACK						
S2	NN = 01h	Length of data					
S3	zz = 01h	(acknowledge ?)					unknown
S4	CRC						
M16	ACK						
M17	SYN						

3.6 B5h 11h 01h - Operational Data of Burner Control Unit to Room Control Unit

Name:	Operational Data of Burner Control Unit to Room Control Unit (B5h 11h Block 1)
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Description:

Comm. Load:

Master/ Slave Byte- No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
M1	QQ	Source address					
M2	ZZ	Target address					
M3	PB = B5h	Vaillant command					
M4	SB = 11h	Operational Data					
M5	NN = 01h	Length of data					
M6	01h	Block number					
M7	CRC						
S1	ACK						
S2	NN = 09h	Length of data					
S3	VT	Lead water temperature (Vorlauf-/ Anlagentemperatur)	°C	0 – 100	DATA1c		
S4	NT	Return water temperature (Nachlaufemperatur)	°C	0 – 100	DATA1c		
S5	TA_L	Outside temperature	°C	-50,0 – 50,0	DATA2b [1/256]		
S6	TA_H						
S7	WT	(WW-Auslaufemperatur)	°C	0 – 100	DATA1c		
S8	ST	Service water temperature (WW-Speichertemperatur)	°C	0 – 100	DATA1c		
S9	vv	Bit 0: Heating Bit 1: Service Water			BIT		0 = OFF 1 = ON
S10	xx ₁						unknown, always 00h
S11	xx ₂						unknown, always FFh
S12	CRC						
M8	ACK						
M9	SYN						

3.7 B5h 11h 02h - Operational Data of Burner Control Unit to Room Control Unit

Name:	Operational Data of Burner Control Unit to Room Control Unit (B5h 11h Block 2)
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Description:

Comm. Load:

Master/ Slave Byte- No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
M1	QQ	Source address					
M2	ZZ	Target address					
M3	PB = B5h	Vaillant command					
M4	SB = 11h	Operational Data					
M5	NN = 01h	Length of data					
M6	02h	Block number					
M7	CRC						
S1	ACK						
S2	NN = 05h	Length of data					
S3	xx ₁						unknown, always 03h
S4	xx ₂						unknown, always 3Ch
S5	xx ₃						unknown, always 96h
S6	xx ₄						unknown, always 46h
S7	ST	Service water target temperature	°C	0 – 100	DATA1c		
S8	CRC						
M8	ACK						
M9	SYN						

3.8 B5h 12h - Unknown Command

Name: **Unknow command [ping] (B5h 12h)**

Description:

Comm. Load:

Date/Time:

Master/ Slave Byte- No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
M1	QQ	Source address					
M2	ZZ	Target address					
M3	PB = B5h	Vaillant command					
M4	SB = 12h	Unknown command [ping ?]					
M5	NN = 02h	Length of data					
M6	xx	?					
M7	yy	?					
M8	CRC						
S1	ACK						
S2	NN = 00h	Length of data					
S3	CRC						
M9	ACK						
M10	SYN						

The following cases were observed:

- Heater Controller (Master 10h) → Firing Automat 1 (Slave 08h):
xx = 00h, yy = 00h
xx = 00h, yy = 64h
- Firing Automat 1 (Master 03h) → Pump 1 (Slave 64h):
xx = 02h, yy = 00h
xx = 02h, yy = 64h
xx = 02h, yy = FEh
- Firing Automat 1 (Master 03h) → PC/ Modem (Slave 05h):
xx = 03h, yy = 00h

3.9 B5h 16h 00h - Broadcast Service

Name: Broadcast Service (B5h 16h)

Description:

Comm. Load:

Date/Time:

Master/ Slave Byte- No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
M1	QQ	Source address					
M2	ZZ = FEh	Target address					Broadcast
M3	PB = B5h	Vaillant command					
M4	SB = 16h	Broadcast Service					
M5	NN = 08h	Length of data					
M6	00h	Broadcast Date/Time					
M7	ss	Seconds	Sec	0..59	BCD		
M8	min	Minutes	Min	0..59	BCD		
M9	hh	Hours	Hour	0..59	BCD		
M10	dd	Day		1..31	BCD		
M11	mm	Month		1..12	BCD		
M12	ww	Weekday		1..7	BCD		
M13	yy	Year		0..99	BCD		
M14	CRC						
M15	SYN						

3.10 B5h 16h 01h - Broadcast Service

Name: Broadcast Service (B5h 16h)

Description:

Comm. Load:

Outside Temperature:

Master/ Slave Byte- No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
M1	QQ	Source address					
M2	ZZ = FEh	Target address					Broadcast
M3	PB = B5h	Vaillant command					
M4	SB = 16h	Broadcast Service					
M5	NN = 03h	Length of data					
M6	01h	Broadcast outside temperature					
M7	TA_L	Outside temperature	°C	-50,0 – 50,0	DATA2b [1/256]		
M8	TA_H						
M14	CRC						
M15	SYN						

4 History

2010-03-07	V0.2.0	3.1.5 Service B5h 04h Block 0Fh: added boiler temperatures SP1 and SP2 added hypothesis for S6-7 3.1.7 Service B5h 04h Block 12h: added collector temperature KOL1
2010-03-01	V0.1.0	Introduced version number Added chapter for typical Vaillant addresses Added additional B5h 04h commands EXpanded B5h 05h command Added B5h 09h command
2009-09-30		Added parameter name for S4 at Service B5h 11h Block 1.
2009-09-29		Initial release.