

eBUS Specification

Application Layer – OSI 7

Vaillant specific extensions

V0.4.0

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1 General

1.1 Disclaimer

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

All use of this information is on your own risk! There is no guarantee in any way that the information is correct. Any damages resulting in using this information is done on your own risk!

If you encounter some incorrect interpretation you are welcome to contribute your knowledge to the open public with this document.

2 Vaillant Addresses

2.1 Master Addresses

Address	Priority	Master	Description
10h			Main Control Unit: <ul style="list-style-type: none">• VRS620 (auroMATIC 620)
3F			Burner

2.2 Slave Addresses

Address	Slave	Description
23h		Circulation?
25h		Service Water?
26h		HK1?
50h		Mixer?
ECh		Sun Collector?

3 Vaillant Commands (Service B5h)

3.1 04h - Get Operational Data

The **Get Data Block** command is used for requesting data from other devices.

Compared to the eBUS protocol specification, it seems that this command is used in some specific way:

- The master always sends exactly one parameter byte (M6) which can be seen as an extension of the primary command byte (PB) and the secondary command byte (SB).
- Some commands are defined in a general way so that the content of the answer may depend on the target address (see Block 0Dh)

VRS620 specific:

The VRS620 seems to use this command very strongly, even if it is not connected to many other devices: Only Block00h is a real communication to an externally connected device (outside temperature sensor combined with a receiver for DCF77 time signal). All other commands can be observed on the eBUS even if there is no additional device connected (no mixer, no burner unit with eBUS-interface). It seems that the This makes it possible to get most of the important status information by using a read-only interface to the PC. Using this solution there is more or less no influence to the system behavior of the VRS620.

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 Unknown (B5h 04h – Block 01h)

Description: 26h is available in Grunddarstellung?
25h and ECh could be observed at VRS620 in “Grundanzeige”
25h can be observed also at Grunddaten page 5 “Speichersoll”

Comm. Load:

Master/Slave Byte-No.	Abbrev.	Description	Unit	Range	Type/[Res.]	Repl. Value	Note		
M1	QQ	Source address					VRS620	VRS620	VRS620
M2	ZZ	Target address					26h	25h	ECh
M3	PB = B5h	Vaillant command					B5h	B5h	B5h
M4	SB = 04h	Get Data Block					04h	04h	04h
M5	NN = 01h	Length of data					01h	01h	01h
M6	DB = 01h	Block 01h					01h	01h	01h
M7	CRC						D8h	D2h	C9h
S1	ACK						00h	00h	00h
S2	NN = 09h	Length of data					09h	09h	09h
S3							19h	37h Speicher SOLL	00h
S4							04h	03h	03h
S5							00h	00h	00h
S6							00h	00h	00h
S7							02h	02h	02h
S8							05h	03h	07h
S9							00h	00h	00h
S10							00h Heiz. Timer off 01h Heiz. Timer on	01h	01h
S11							00h	00h	00h
S12	CRC						2Ch	92h	62h
M8	ACK						00h	00h	00h
M9	SYN						AAh	AAh	AAh

3.1.3 Block 02h .. Block 08h - GetTimerProgram

Name: Get Timer Program Monday (B5h 04h – Block 02h)

Description: This command retrieves the timer program from the target device. It can be seen every 20s on the VRS620 when the display is switched to the menu level (page 3 "Zeitprogramme):

- HK1 Zeitprogramme: 26h
- Warmwasser Zeitprogramme: 25h
- Zirkulationspumpe Zeitprogramme: 23h

Comm. Load:

Master/ Slave Byte-No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
M1	QQ	Source address					VRS620
M2	ZZ	Target address					
M3	PB = B5h	Vaillant command					
M4	SB = 04h	Get Data Block					
M5	NN = 01h	Length of data					
M6	DBh	02h: Monday 03h: Tuesday 04h: Wednesday 05h: Thursday 06h: Friday 07h: Saturday 08h: Sunday					
M7	CRC						
S1	ACK						
S2	NN = 07h	Length of data					
S3	T1A	Timer 1 Start Time	10min	0..90h	BYTE	90h	
S4	T1O	Timer 1 Stop Time	10min	0..90h	BYTE	90h	
S5	T2A	Timer 2 Start Time	10min	0..90h	BYTE	90h	
S6	T2O	Timer 2 Stop Time	10min	0..90h	BYTE	90h	
S7	T3A	Timer 3 Start Time	10min	0..90h	BYTE	90h	
S8	T3O	Timer 3 Stop Time	10min	0..90h	BYTE	90h	
S9	MS	(unknown)			BYTE		00h, 02h, 03h
S10	CRC						
M8	ACK						
M9	SYN						

3.1.4 Block 09h – Unknown

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

Description: This command regularly is sent to all slaves

Comm. Load:

Mast er/ Slave Byte- No.	Abbr ev.	Descriptio n	Un it	Range	Type/ [Res.]	Repl. Value	Note				
M1	QQ	Source address					VRS620	VRS620	VRS620	VRS620	VRS620
M2	ZZ	Target address					23h	25h	26h	50h	ECh
M3	PB = B5h	Vaillant command					B5h	B5h	B5h	B5h	B5h
M4	SB = 04h	Get Data Block					04h	04h	04h	04h	04h
M5	NN = 01h	Length of data					01h	01h	01h	01h	01h
M6	DB = 09h	Block 09h					09h	09h	09h	09h	09h
M7	CRC						CEh	DAh	D0h	F6h	C1h
S1	ACK						00h	00h	00h	00h	00h
S2	NN = 0Ah	Length of data					0Ah	0Ah	0Ah	0Ah	0Ah
S3							14h	37h Speicher SOLL	19h	14h	00h
S4							00h	00h	11h Absenk-temp.	0Fh	00h
S5							00h	00h	3Ch	78h	00h
S6							00h	00h	00h	00h	00h
S7							06h	03h	05h	80h	07h
S8							16h	16h	14h	16h	16h
S9							00h	00h	00h	00h	00h
S10							0Fh	0Fh	23h	0Fh	00h
S11							4Bh	5Ah	28h	4Bh	00h
S12							00h	00h	00h	00h	00h
S13	CRC						80h				
M8	ACK						00h	00h	00h	00h	00h
M9	SYN						AAh	AAh	AAh	AAh	AAh

3.1.5 Block 0Ah – Unknown

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

Description: When display “C2” “HK1 Information” is selected at the VRS620, this command is observed every 20s for 23h and 25h.

Comm. Load:

Mast er/ Slave Byte- No.	Abbrev	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note		
M1	QQ	Source address					Ladepumpenstatus AUS Zirkulationspumpe AUS	Ladepumpenstatus AUS Zirkulationspumpe AUS	VRS620
M2	ZZ	Target address					VRS620	VRS620	VRS620
M3	PB = B5h	Vaillant command					23h	25h	26h
M4	SB = 04h	Get Data Block					B5h	B5h	B5h
M5	NN = 01h	Length of data					04h	04h	04h
M6	DB = 09h	Block 09h					01h	01h	01h
M7	CRC						0Ah	0Ah	0Ah
S1	ACK						CDh	D9h	D3h
S2	NN = 0Ah	Length of data					00h	00h	00h
S3-4					DATA2c [1/16]	8000h	8000h	Speicher IST	Vorlauf IST
S5							00h	00h	00h
S6							00h	00h	00h, 01 Pumpe AN/AUS
S7							00h	00h	00h
S8							00h	00h	00h, 26h Vorlauf SOLL
S9	CRC								
M8	ACK						00h	00h	00h
M9	SYN						AAh	AAh	AAh

3.1.6 Block 0Bh – Unknown

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

Description: This command is also sent every 20s when at VRS620 the “C4” “Speicherladekreise Parameter” is selected.

Comm. Load:

Master/ Slave Byte- No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
							Nachladevrz. AUS Ladepumpennachlauf 5min Legionellenschutz AUS Parallele Ladung AUS
M1	QQ	Source address					VRS620
M2	ZZ	Target address					25h
M3	PB = B5h	Vaillant command					B5h
M4	SB = 04h	Get Data Block					04h
M5	NN = 01h	Length of data					01h
M6	DB = 09h	Block 09h					0B
M7	CRC						D8h
S1	ACK						00h
S2	NN = 04h	Length of data					04h
S3		Speicher Nachladeverz.					00h, 1Eh
S4		Speicher Ladepumpennachlauf	min				05h
S5		Speicher Legionellenschutz	bool				00h, 01h
S6		Speicher parallele Ladung	bool	0,01			00h, 01h
S9	CRC						
M8	ACK						00h
M9	SYN						AAh

3.1.7 Block 0Dh– Unknown

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

Description: This command regularly is sent to all slaves
It requests the addressed device to report its operational data. The data reported is dependent on the target address.

Comm. Load:

Master/ Slave Byte No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note					
M1	QQ	Source address					VRS620	VRS620	VRS620	VRS620	VRS620	VRS620
M2	ZZ	Target address					26h	25h	23h	50h	ECh	
M3	PB = B5h	Vaillant command					B5h	B5h	B5h	B5h	B5h	B5h
M4	SB = 04h	Get Data Block					04h	04h	04h	04h	04h	04h
M5	NN = 01h	Length of data					01h	01h	01h	01h	01h	01h
M6	DB = 0Dh	Block 0Dh					0Dh	0Dh	0Dh	0Dh	0Dh	0Dh
M7	CRC						D4h	DE	CAh	F2h	C5h	
S1	ACK						00h	00h	00h	00h	00h	00h
S2	NN = 05h	Length of data					05h	05h	05h	05h	05h	05h
S3		Vorlauf Soll?				00h	00h, 28h	00h	00h	00h	00h	00h
S4							00h	00h	00h	00h	00h	00h
S5-6	TW	sensor temperature	°C		DATA2c [1/16]	8000h	Vorlauf-temp (VF1)	Boiler-temp (SP1)	8000h	8000h	8000h	8000h
S7		Bit 0: System ON? Bit 1: Bit 2: Heating OFF? Bit 3:Heizung an (Timer)? Bit 4 Pumpe an? Bit 5: Bit 6: Bit 7:					11h Auto bzw., Absenk. 19h ON, Timer 05h OFF, ECO	37h Speicher SOLL	00h	14h	00h	00h
S8	CRC											
M8	ACK						00h	00h	00h	00h	00h	00h
M9	SYN						AAh	AAh	AAh	AAh	AAh	AAh

3.1.8 Block 0Fh – Service Water

Name: Get Data Block Service Water (B5h 04h - Block 0Fh)

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 = 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							21h
S8							FFh
S9							21h
S10							FFh
S11	BW1	(BIT0 BW_loading?) (BIT1 BW_active?)					00h, 01h, 10h, 11h
S12	BW2	(BIT 1 BW_loading?)					00h, 02h
S13	CRC						E4h
M8	ACK						00h
M9	SYN						AAh

3.1.9 Block 10h – Unknown

Name: Get Data Block Service Water (B5h 04h - Block 10h)

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 = 0Fh	Block 0Fh					10h
M7	CRC						D8h
S1	ACK						00h
S2	NN = 0Ah	Length of data					0Ah
S3-4	SP1	Service water temperature (boiler top sensor)	°C		DATA2c [1/16]	8000h	Speicherfühler (SP1)
S5-6	SP2	Service water temperature (boiler bottom sensor)	°C		DATA2c [1/16]	8000h	Speicherfühler (SP2)
S7-8		Service water temperature? (boiler bottom sensor)	°C		DATA2c [1/16]	8000h	Speicherfühler? (SP3)
S9-10		Service water temperature? (boiler bottom sensor)	°C		DATA2c [1/16]	8000h	Speicherfühler? (SP4)
S11							00h
S12							80h
S13	CRC						
M8	ACK						00h
M9	SYN						AAh

3.1.10 Block 11h – Unknown

Name: Get Data Block 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

3.1.11 Block 12h – Solar1

Name: Get Data Block Solar1 (B5h 04h - Block 12h)

Description:

Comm. Load: Cycle rate: 1/10s

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	KOL1	sun collector 1 temperature	°C		DATA2c [1/16]		Kollektorfühler (KOL1)
S5							00h, 01h 00h = Pumpe aus? 01h = Pumpe an?
S6-7	RP	Runtime solar pump	h		WORD		Laufzeit Solarpumpe in Std
S8-9	KOL2	sun collector2 temperature	°C		DATA2c [1/16]		Kollektorfühler (KOL2)
S10							00h Laufzeit2?
S11							00h Laufzeit2?
S12							00h
S13	CRC						
M8	ACK						00h
M9	SYN						AAh

3.1.12 Block 13h – Solar2

Name: Get Data Block Solar2 (B5h 04h - Block 13h)

Description:

Comm. Load: Cycle rate: 1/24h
or when user initiates display of data on the control.

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=13h	Block 13h					13h
M7	CRC						DBh
S1	ACK						00h
S2	NN=09h	Length of data					09h
S3-4	SY	solar yield	KWh		WORD		Solarertrag
S5		solar yield (byte 3)?					00h
S6-7	FR	solar flow rate	l/h	0 -9990	WORD		
S8							00h
S9							01h
S10							01h
S11							03h
S12	CRC						
M8	ACK						00h
M9	SYN						AAh

3.2 05h – Set Operational Data

As for all commands the primary byte (PB) is already defined by always being B5h, the first parameter byte (M6) is used as an extension to the sub command (SB), which here is called the tertiary byte (TB). Probably all commands can be sent as a broadcast or with a specific target address. In case of not being a broadcast, an empty frame is sent back as an answer.

Name:	Set Operational Data (B5h 05h)
--------------	---------------------------------------

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					
M3	PB = B5h	Vaillant command					
M4	SB = 05h	Burner Operational Data					
M5	NN	Length of data					
M6	TB	parameter name 01h: Speicher SOLL 0Ah: HK1 Absenkttemperatur 11h: Speicher: Nachladeverz. 12h: Speicher Ladepumpennachl. 13h: Speicher Legionellenschutz 14h: Speicher parallele Ladung 20h: Solarertrag zurücksetzen	°C °C ? min bool bool bool	00, 1Eh 00h, 01h 00h, 01h 01h	DATA1b DATA1b DATA1b		04h, 29h 1Eh = ON ECh

3.2.1 05h 01h SetTargetCylinderTemperature

Name: Set Target Cylinder Temperature (B5h 05h 01h)

Description: This command is sent when the cylinder target temperature has been changed.

Comm. Load:

Master / Slave Byte-No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
M1	QQ	Source address					VRS620
M2	ZZ	Target address					25h, FEh
M3	PB = B5h	Vaillant command					
M4	SB = 05h	Set Operational Data					
M5	NN = 02h	Length of data					
M6	TB = 01h	SetTargetCylinderTemperature					VRS620: Warmwasser Speichersoll
M7	TT	Target Temperature	°C		DATA1b		00h
M8	CRC						

ZZ == FEh (broadcast):

M9	SYN						
----	-----	--	--	--	--	--	--

ZZ != FEh (target)

S1	ACK						
S2	NN = 00h						
S3	CRC						
M9	ACK						
M10	SYN						

3.2.2 05h 09h SetTimerProgram

Name: Set Timer Program (B5h 05h 09h)

Description: This command is sent when the timer for the circulation pump has been reprogrammed by the user interface.
Written data can be read by the commands B5h 04h 02h – B5h 04h 08h

Comm. Load:

Master / Slave Byte-No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
M1	QQ	Source address					VRS620
M2	ZZ	Target address					25h: Service Water 26h: HK1 23h: Circulation Pump
M3	PB = B5h	Vaillant command					
M4	SB = 05h	Set Operational Data					
M5	NN = 09h	Length of data					
M6	TB = 09h	SetTimerProgram					
M7	DY	01h: Monday 02h: Tuesday 03h: Wednesday 04h: Thursday 05h: Friday 06h: Saturday 07h: Sunday			BYTE		
M8	T1A	Timer 1 Start Time	10min	0..90h	BYTE	90h	90h = 24:00h
M9	T1O	Timer 1 Stop Time	10min	0..90h	BYTE	90h	
M10	T2A	Timer 2 Start Time	10min	0..90h	BYTE	90h	
M11	T2O	Timer 2 Stop Time	10min	0..90h	BYTE	90h	
M12	T3A	Timer 3 Start Time	10min	0..90h	BYTE	90h	
M13	T3O	Timer 3 Stop Time	10min	0..90h	BYTE	90h	
M14	MS	00h: selected day only 01h: Mo-Fr 02h: Sa-So ??h: Mo-So			BYTE		
M15	CRC						

ZZ == FEh (broadcast):

M9	SYN						
----	-----	--	--	--	--	--	--

ZZ != FEh (target)

S1	ACK						
S2	NN = 00h						
S3	CRC						
M9	ACK						
M10	SYN						

3.2.3 05h 0Ah SetNightTemperatureHK1

Name:	Set Night Room Temperature for HK1 (B5h 05h 0Ah)
--------------	---

Description:	This command is sent when the target value for the nightly room temperature has been changed.
---------------------	---

Comm. Load:	
--------------------	--

Master / Slave Byte-No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
M1	QQ	Source address					VRS620
M2	ZZ	Target address					25h, FEh
M3	PB = B5h	Vaillant command					
M4	SB = 05h	Set Operational Data					
M5	NN = 02h	Length of data					
M6	TB = 0Ah	SetNightTemperatureHK1					VRS620: HK1 Absenktemperatur
M7	TT	Target Temperature	°C		DATA1b		00h
M8	CRC						

ZZ == FEh (broadcast):

M9	SYN						
----	-----	--	--	--	--	--	--

ZZ != FEh (target)

S1	ACK						
S2	NN = 00h						
S3	CRC						
M9	ACK						
M10	SYN						

3.2.4 05h 0Bh SetHeatingTemperatureRatioHK1

Name: Set Heating Temperature Ratio for HK1 (B5h 05h 0Bh)

Description: This command is sent when the target value for the heating temperature ratio has been changed. The heating temperature ratio defines the change of the lead water temperature depending on the outside temperature.

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, FEh
M3	PB = B5h	Vaillant command					
M4	SB = 05h	Set Operational Data					
M5	NN = 03h	Length of data					
M6	TB = 0Bh	SetHeatingTemperatureRatioHK1					VRS620: HK1 Heizkurve
M7-8	TR	Temperature Ratio	%		WORD		A ratio of 1.5 would be 150%
M9	CRC						

ZZ == FEh (broadcast):

M10	SYN						
-----	-----	--	--	--	--	--	--

ZZ != FEh (target)

S1	ACK						
S2	NN = 00h						
S3	CRC						
M10	ACK						
M11	SYN						

3.2.5 05h 11h SwitchSWLoadingPumpDelay

Name:	Switch Service Water Loading Pump Delay (B5h 05h 11h)
--------------	--

Description:	This command is sent when the delay of the service water loading pump is activated or deactivated.
---------------------	--

Comm. Load:	
--------------------	--

Master / Slave Byte-No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
M1	QQ	Source address					VRS620
M2	ZZ	Target address					25h, FEh
M3	PB = B5h	Vaillant command					
M4	SB = 05h	Set Operational Data					
M5	NN = 02h	Length of data					
M6	TB = 11h	SwitchSWLoadingPumpDelay					VRS620: Nachladeverzögerung
M7	00h 1Eh	Off On			BYTE		00h
M8	CRC						

ZZ == FEh (broadcast):

M9	SYN						
----	-----	--	--	--	--	--	--

ZZ != FEh (target)

S1	ACK						
S2	NN = 00h						
S3	CRC						
M9	ACK						
M10	SYN						

3.2.6 05h 12h SetSWLoadingPumpDelay

Name: Set Service Water Loading Pump Delay (B5h 05h 12h)

Description: This command defines the time the loading pump is running after the burner has already switched off. It is sent when the delay has been changed.

Comm. Load:

Master / Slave Byte-No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
M1	QQ	Source address					VRS620
M2	ZZ	Target address					25h, FEh
M3	PB = B5h	Vaillant command					
M4	SB = 05h	Set Operational Data					
M5	NN = 02h	Length of data					
M6	TB = 12h	SetSWLoadingPumpDelay					VRS620: Ladepumpennachlauf
M7	PD	Pump Delay	min	3-9	DATA1b		
M8	CRC						

ZZ == FEh (broadcast):

M9	SYN						
----	-----	--	--	--	--	--	--

ZZ != FEh (target)

S1	ACK						
S2	NN = 00h						
S3	CRC						
M9	ACK						
M10	SYN						

3.2.7 05h 13h SwitchLegionnairesDiseaseProtection

Name: Switch Legionnaire's Disease Protection (B5h 05h 13h)

Description: This command defines the time the loading pump is running after the burner has already switched off. It is sent when the delay has been changed.

Comm. Load:

Master / Slave Byte-No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
M1	QQ	Source address					VRS620
M2	ZZ	Target address					25h, FEh
M3	PB = B5h	Vaillant command					
M4	SB = 05h	Set Operational Data					
M5	NN = 02h	Length of data					
M6	TB = 13h	SwitchLegionnairesDiseaseProtection					VRS620: Ladepumpennachlauf
M7	00h 01h	Off On			BYTE		
M8	CRC						

ZZ == FEh (broadcast):

M9	SYN						
----	-----	--	--	--	--	--	--

ZZ != FEh (target)

S1	ACK						
S2	NN = 00h						
S3	CRC						
M9	ACK						
M10	SYN						

3.2.8 05h 14h SwitchParallelLoading

Name: Switch Parallel Loading (B5h 05h 14h)

Description: This command defines if the service water cylinder is allowed to be loaded in parallel by the solar collector and the boiler. It is sent when the settings has been changed.

Comm. Load:

Master / Slave Byte-No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
M1	QQ	Source address					VRS620
M2	ZZ	Target address					25h, FEh
M3	PB = B5h	Vaillant command					
M4	SB = 05h	Set Operational Data					
M5	NN = 02h	Length of data					
M6	TB = 14h	SwitchParallelLoading					VRS620: Parallele Ladung
M7	00h 01h	Off On			BYTE		
M8	CRC						

ZZ == FEh (broadcast):

M9	SYN						
----	-----	--	--	--	--	--	--

ZZ != FEh (target)

S1	ACK						
S2	NN = 00h						
S3	CRC						
M9	ACK						
M10	SYN						

3.2.9 05h 20h ResetSolarYieldKOL1

Name: Switch Parallel Loading (B5h 05h 20h)

Description: This command defines if the service water cylinder is allowed to be loaded in parallel by the solar collector and the boiler. It is sent when the settings has been changed.

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, FEh
M3	PB = B5h	Vaillant command					
M4	SB = 05h	Set Operational Data					
M5	NN = 02h	Length of data					
M6	TB = 20h	ResetSolarYieldKOL1					VRS620: Solarertrag Rücksetzen
M7	01h	Reset			BYTE		
M8	CRC						

ZZ == FEh (broadcast):

M9	SYN						
----	-----	--	--	--	--	--	--

ZZ != FEh (target)

S1	ACK						
S2	NN = 00h						
S3	CRC						
M9	ACK						
M10	SYN						

3.2.10 05h 21h SetSolarFlowRate

Name: Set Solar Flow Rate (B5h 05h 21h)

Description: This command defines if the service water cylinder is allowed to be loaded in parallel by the solar collector and the boiler. It is sent when the settings has been changed.

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, FEh
M3	PB = B5h	Vaillant command					
M4	SB = 05h	Set Operational Data					
M5	NN = 03h	Length of data					
M6	TB = 21h	SetSolarFlowRate					VRS620: Solarertrag Durchflussmenge
M7-8	01h	Reset	l/h	0-9990	WORD		
M9	CRC						

ZZ == FEh (broadcast):

M10	SYN						
-----	-----	--	--	--	--	--	--

ZZ != FEh (target)

S1	ACK						
S2	NN = 00h						
S3	CRC						
M10	ACK						
M11	SYN						

3.2.11 05h 27h HeatingStatus

Name:	Heating Status (B5h 05h 27h)
--------------	-------------------------------------

Description:	This is sent regularly by the VRS620. It seems to report aboutt he status of the heating system. It normally is sent as a broadcast.
---------------------	--

Comm. Load:	1/10s
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Master / Slave Byte-No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
M1	QQ	Source address					VRS620
M2	ZZ	Target address					FEh
M3	PB = B5h	Vaillant command					
M4	SB = 05h	Set Operational Data					
M5	NN = 04h	Length of data					
M6	TB = 27h	HeatingStatus					VRS620: Solarertrag Durchflussmenge
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						

ZZ == FEh (broadcast):

M11	SYN						
-----	-----	--	--	--	--	--	--

3.2.12 05h 2Bh Unknown

Name: Heating Status (B5h 05h 2Bh)

Description: This is sent regularly by the VRS620. It is sent every 10s with rotating target address. It normally is sent as a broadcast.

Comm. Load: 1/10s

Master / Slave Byte-No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
M1	QQ	Source address					VRS620
M2	ZZ	Target address					23h 25h 26h 50h ECh
M3	PB = B5h	Vaillant command					B5h B5h B5h B5h B5h
M4	SB = 05h	Set Operational Data					05h 05h 05h 05h 05h
M5	NN = 07h	Length of data					07h 07h 07h 07h 07h
M6	TB = 2Bh	Unknowns					2Bh 2Bh 2Bh 2Bh 2Bh
M7							0Fh 0Fh 0Fh 0Fh 0Fh
M8							01h 01h 01h 01h 01h
M9							00h 00h 00h 00h 00h
M10							00h 00h 00h 00h 00h
M11							05h 05h 05h 05h 05h
M12							00h 00h 00h 00h 00h
M13	CRC						

ZZ == FEh (broadcast):

M14	SYN						
-----	-----	--	--	--	--	--	--

ZZ != FEh (target)

S1	ACK						
S2	NN = 00h						
S3	CRC						
M14	ACK						
M15	SYN						

3.2.13 05h 2Dh Unknown

Name: Unknown (B5h 05h 2Dh)

Description: This command has been observed at the VRS620.

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					
M4	SB = 05h	Set Operational Data					
M5	NN = 04h	Length of data					
M6	TB = 2Dh	Unknown					
M7		Bit0 = BW_load			BYTE		00h
M8	VT	Lead water temperature	°C	0-89	CHAR	5Ah	00h
M9		Bit0 = BW_load			BYTE		00h
M10	CRC						

ZZ == FEh (broadcast):

M11	SYN						
-----	-----	--	--	--	--	--	--

ZZ != FEh (target)

S1	ACK						
S2	NN = 00h						
S3	CRC						
M11	ACK						
M12	SYN						

Master/ Slave Byte-No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
M1	QQ	Source address					VRS620
M2	ZZ	Target address					
M3	PB = B5h	Vaillant command					
M4	SB = 05h	Burner Operational Data					
M5	NN = 09h	Length of data					
M6	PN	parameter name 09h: Zeitprogramme					ZZ = 23h
M7	PV1	parameter value					
	PV2						
	PV3						
	PV4						
	PV5						
	PV6						
	PV7						
	PV8						
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: Gültige Daten evtl. nur in Grundanzeige?

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, 02h
S5							00h
S6							00h
S7							00h
S8							00h
S9							00h
S10							00h
S11							00h
S12							00h
S13	CRC						9Fh, 3Eh
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)
-------	---

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 (Vorlauftemperatur)	°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)
--------------	---

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)
--------------	---

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

2010-03-22	V0.4.0	<p>3.1.2 Service B5h 04h Block 01h: definition of S3 for target 25h</p> <p>3.1.3 Service B5h 04h Block 02h-08h: added</p> <p>3.1.4 Service B5h 04h Block 09h: definition of S3 for target 25h</p> <p>3.1.5 Service B5h 04h Block 0Ah: some definitions added</p> <p>3.1.7 Service B5h 04h Block 0Dh: definition of S7 for target 25h</p> <p>3.1.12 Service B5h 04h Block 12h: definition of S6-7</p> <p>3.2 Service B5h 05h restructured and many commands added</p>
2010-03-18	V0.3.0	<p>3.1 Service B5h 04h added general description</p> <p>3.1.4 Service B5h 04h Block 0Ah: added</p> <p>3.1.5 Service B5h 04h Block 0Bh: added</p> <p>3.1.6 Service B5h 04h Block 0Dh: added lead temperature and status bits</p> <p>3.1.7 Service B5h 04h Block 0Fh: renamed to "Service Water"</p> <p>3.1.8 Service B5h 04h Block 10h: added"</p> <p>3.1.10 Service B5h 04h Block 12h: renamed to "Solar1"</p> <p>confirmed S6-7 Runtime solar pump</p> <p>added S8-9 temperature KOL2</p> <p>3.1.11 Service B5h 04h Block 13h: added as "Solar2"</p> <p>3.2 Service B5h 05h added new variant (not a broadcast)</p>
2010-03-07	V0.2.0	<p>3.1.5 Service B5h 04h Block 0Fh: added boiler temperatures SP1 and SP2</p> <p>added hypothesis for S6-7</p> <p>3.1.7 Service B5h 04h Block 12h: added collector temperature KOL1</p>
2010-03-01	V0.1.0	<p>Introduced version number</p> <p>Added chapter for typical Vaillant addresses</p> <p>Added additional B5h 04h commands</p> <p>EXpanded B5h 05h command</p> <p>Added B5h 09h command</p>
2009-09-30		Added parameter name for S4 at Service B5h 11h Block 1.
2009-09-29		Initial release.