eBUS Documentation

Vaillant specific extensions

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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.

Severe damage to a heating system may occur if the “set ...” commands documented here are used incorrectly,

Usage of the information provided here is strictly at your own risk. The authors do not take any responsibility for the correctness of the information provided here, nor any liability for damage, whether direct or indirect, occuring from the usage of this information.

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

Most of the knowledge has been worked out analyzing communication on a heating system consisting of

	Siegmund Schreiber	Peter A. Henning
Controller	VRS620 • I/O card V2.07 • user interface V2.11	VRS620
Burner	ecoVIT VKK226 E without bus interface	EcoTEC exclusiv VC226
Solar	Paradigma solar collectors	

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1.2 About this Release

V0.6.0 has some more details as analysis software has been grown successfully..

Contribution from others is welcome as my old VRS620 system seems to be quite different from newer systems available now.

1.3 Abbreviations and Terms

This specification tries to use the Vaillant terms found in the VRS620 manual. To understand some specific descriptions in this document, here is a short comparison between the English and German terms:

English	German	Remarks
~~heating circuit~~heating circuit	Heizkreis	
flow temperature	Vorlauftemperatur	
basic display	Grunddarstellung	
~~cylinder~~storage	Warmwasserspeicher	
domestic hot water (DHW)	Warmwasser (WW)	
night ~~set back~~fallback temperature	Absenktemperatur	
fast temp increase	Temperaturüberhöhung	

2 Vaillant Addresses

2.1 Master Addresses

Address	Priority	Master	Description
10h			Main Control Unit: • VRS620 (auroMATIC 620)
3Fh			Burner

2.2 VRS620 Slave Addresses

The following addresses are used within the VRS620 to address the internal modules:

Address	Slave	Description
23h	HK1	circulation
25h	DHW	domestic ~~hot water circuit~~hot water circuit (including ~~cylinder~~storage)
26h	HK1	~~heating circuit~~heating circuit 1
50h	HK1	mixer circuit
ECh	SOL1	~~solar circuit~~solar circuit

3 Vaillant Commands (Service B5h)

3.1 04h - Get Operational Data

The **Get Operational Data (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 09h and 0Dh)

VRS620 specific:
The VRS620 seems to use very strongly 05h 04h and 05h 05h, 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).
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 risk to 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:	This message is sent every 30s. It is very similar to the standard eBUS message “Date/Time Message of an eBUS Master (07 00), which in addition can be observed every 60s.
Comm. Load:	1/30s

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 receiption receiption synchronized data valid			BYTE		
S4	ss	Seconds	s	0..59	BCD		
S5	min	Minutes	m	0..59	BCD		
S6	hh	Hours	h	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:	**GetOperatingMode (B5h 04h – Block 01h)**

Description:	This message informs about the operational mode and the target settings of the different circuits. 26h is sent during basic display 25h and ECh can be observed at VRS620 in “Betriebsarten” 25h can be observed also at Grunddaten page 5 “Speichersoll” (?)
Comm. Load:	1/20s

Master/ Slave Byte-No.	**Abbrev.**	**Description**	**Unit**	**Range**	**Type/ [Res.]**	**Note**				
M1	QQ	Source address				VRS620	VRS620	VRS620	VRS620	VRS620
M2	ZZ	Target address				23h	25h (HWC~~DHW~~)	26h (HC~~K1~~)	50h (MIX)	ECh (SOL)~~KOL1~~)
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 = 01h	Block 01h				01h	01h	01h	01h	01h
M7	CRC					C6h	D2h	D8h	FEh	C9h
S1	ACK					00h	00h	00h	00h	00h
S2	NN = 09h	Length of data				09h	09h	09h	09h	09h
S3	TV	Target value	°C		BYTE	14h	~~Cylinder~~Storage target temperature	Room target temperature	14h	00h
S4	MD	Operating mode			BYTE	03h	01h: on 02h: off 03h: auto	01h: heating 02h: off 03h: auto 04h: eco 05h: night	03h	02h: off 03h: auto
S5						00h	00h	00h	00h	00h
S6						00h	00h	00h	00h	00h
S7						02h	02h	02h	05h	02h
S8						06h	03h	05h	80h	07h
S9						00h	00h	00h	00h	00h
S10						00h	01h	HC~~HK1~~ Timer 00h off 01h on	00h	01h
S11						00h	00h	00h	00h	00h
S12	CRC						92h			
M8	ACK						00h	00h		00h
M9	SYN						AAh	AAh		AAh

3.1.3 Block 02h .. 08h - GetTimerProgram

Name:	Get Timer Program Monday (B5h 04h – Block 02h .. 08h)

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 “Timer programs”): • Circulation (CIR) timer programs: 23h • hot water circuit (HWC) timer programs: 25h • HK1heating circuit (HC) tTimer programs: 26h imer programs: 25hT DHW Circulation Timer programs: 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 – Get Parameters

Name:	**Get ~~Data Block Unknown~~Parameters (B5h 04h - Block 09h)**
Description:	This command is regularly ~~is~~ sent from VRS620 to its internal modules. Response depends ~~Depending~~ on the addressed mModule~~., the data of the answer has to be interpreted, differently.~~
Comm. Load:	1/10s (iterating through all slaves)

Master/ Slave Byte-No.	**Abbrev.**	**Description**	**Unit**	**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	19h	14h	00h
S4			°C		DATA1b		00h	00h	11h	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										
M8	ACK						00h	00h	00h	00h	00h
M9	SYN						AAh	AAh	AAh	AAh	AAh

Answer of 23h (circulation ~~pump~~ CIR):

Slave Byte-No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
S1	ACK						00h
S2	NN = 0Ah	Length of data					0Ah
S3							14h
S4							00h
S5							00h
S6							00h
S7							06h
S8							16h
S9							00h
S10							0Fh
S11							4Bh
S12							00h

Answer of 25h (hot water~~DHW~~ circuit HWC):

Slave Byte-No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
S1	ACK						00h
S2	NN = 0Ah	Length of data					0Ah
S3	TT	~~Cylinder~~Storage target temperature	°C		DATA1b		37h
S4							00h
S5-6							00h
S7							03h
S8							16h
S9							00h
S10							0Fh
S11							5Ah
S12							00h

Answer of 26h (heating circuit HC):

Slave Byte-No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
S1	ACK						00h
S2	NN = 0Ah	Length of data					0Ah
S3		Room ~~target~~set temp					19h
S4		Night ~~set-back~~fallback temp	°C	5..30	DATA1b		11h
S5-6		Heating curve	1/100	0.2..4	DATA1b		0.2 .. 0.4 → 0014h .. 0190h
S7							05h
S8		Max limit outs. temp	°C	5..50	DATA1b		14h
S9							00h Raumaufschaltung?
S10		Min flow temp	°C	15..90	DATA1b		23h
S11		Max flow temp	°C	15..90	DATA1b		28h
S12		Max. pre-heat	h	0..5	DATA1b		00h

Answer of 50h (mixer circuit MIX):

Slave Byte-No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
S1	ACK						00h
S2	NN = 0Ah	Length of data					0Ah
S3							14h
S4							0Fh
S5							78h
S6							00h
S7							80h
S8							16h
S9							00h
S10							0Fh
S11							4Bh
S12							00h

Answer of ECh (~~solar circuit~~solar circuit SOL):

Slave Byte-No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
S1	ACK						00h
S2	NN = 0Ah	Length of data					0Ah
S3							00h
S4							00h
S5							00h
S6							00h
S7							07h
S8							16h
S9							00h
S10							00h
S11							00h
S12							00h

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:	

Master/ Slave Byte-No.	**Abbrev.**	**Description**	**Unit**	**Range**	**Type/ [Res.]**	**Repl. Value**	**Note** Ladepumpenstatus AUS Zirkulationspumpe AUS	Ladepumpenstatus AUS Zirkulationspumpe AUS	
M1	QQ	Source address					VRS620	VRS620	VRS620
M2	ZZ	Target address					23h	25h	26h
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 = 09h	Block 09h					0Ah	0Ah	0Ah
M7	CRC						CDh	D9h	D3h
S1	ACK						00h	00h	00h
S2	NN = 0Ah	Length of data					06h	06h	06h
S3-4					DATA2c	8000h	8000h	SP1	8000h~~VF1~~
S5							00h	00h	00h
S6							00h	00h Ladepumpe?	00h, 01 Pumpe AN/AUS
S7							00h	00h	00h
S8					DATA1b		00h	00h	VF1 target
S9	CRC								
M8	ACK						00h	00h	00h
M9	SYN						AAh	AAh	AAh

3.1.6 Block 0Bh – ServiceWaterParameters

Name:	**Get Data Block ServiceWaterParameters (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**
M1	QQ	Source address					VRS620
M2	ZZ	Target address					25h
M3	PB = B5h	Vaillant command					
M4	SB = 04h	Get Data Block					
M5	NN = 01h	Length of data					
M6	DB = 0Bh	Block 0Bh ServiceWaterParameters					
M7	CRC						
S1	ACK						
S2	NN = 04h	Length of data					
S3	LD1	Loading Pump Delay 00h = OFF 01h = ON			BYTE		VRS620: Nachladeverzögerung Changed by Vaillant 05h 011h SwitchSWLoadingPumpDelay
S4	LD2	Loading Pump Delay	min	3-9	DATA1b		VRS620: Ladepumpennachlauf Changed by Vaillant 05h 012h SetSWLoadingPumpDelay
S5	LP	Legionnaire's Disease Protection 00h = OFF 01h = ON			BYTE		VRS620 Legionellenschutz Changed by Vaillant 05h 013h SwitchLegionnairsDisease-Protection
S6		00h = OFF 01h = ON			BYTE		VRS620 Parallele Ladung Changed by Vaillant 05h 014h SwitchParallelLoading
S9	CRC						
M8	ACK						00h
M9	SYN						AAh

3.1.7 Block 0Dh– GetStatus

Name:	**GetStatus (B5h 04h - Block 0Dh)**

Description:	This command regularly is sent to several slaves from the VRS620. It requests the addressed device to report its operational status. The status reported is dependent on the target address.
Comm. Load:	1/10s Every 10s a command is sent (iterating through all slaves).

Master/ Slave Byte-No.	**Abbrev.**	**Description**	**Unit**	**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 = 0Dh	Block 0Dh					0Dh	0Dh	0Dh	0Dh	0Dh
M7	CRC						CAh	DE	D4h	F2h	C5h
S1	ACK						00h	00h	00h	00h	00h
S2	NN = 05h	Length of data					05h	05h	05h	05h	05h
S3						00h	00h	00h	00h, 23h 28h	00h	00h
S4							00h	00h	00h	00h	00h
S5-6	TW	Sensor value			DATA2c	8000h	8000h	SP1	VF1	8000h	8000h
S7							00h			14h	00h
S8	CRC										
M8	ACK						00h	00h	00h	00h	00h
M9	SYN						AAh	AAh	AAh	AAh	AAh

Answer from 023h:

Byte -No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
S1	ACK						00h
S2	NN = 05h	Length of data					05h
S3						00h	00h
S4							00h
S5-6	TW				DATA2c	8000h	8000h
S7							00h

Answer from 025h:

Byte -No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
S1	ACK						00h
S2	NN = 05h	Length of data					05h
S3						00h	00h: ECO,AUTO 23h: on, eco
S4							00h
S5-6	SP1	SP1 temperature	°C		DATA2c	8000h	
S7	TT	~~Cylinder~~Storage target temperature	°C		DATA1b		Value is 00h if DHW is switched off.

Answer from 026h:

Byte -No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
S1	ACK						00h
S2	NN = 05h	Length of data					05h
S3		VF1 target temperature?				00h	00h, 23h, 24h, 28h
S4							00h
S5-6	VF1	VF1 temperature	°C		DATA2c	8000h	
S7		Bit 0: system ON? Bit 1: Bit 2: heating OFF? Bit 3:boiler on (Timer)? Bit 4 circ. pump on? Bit 5: Bit 6: Bit 7:					05h OFF, ECO 15h 11h Auto / night ~~set back~~fallback 19h ON, Timer

Answer from 50h:

The mixer circuit seems not to report any useful data:

Byte -No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
S1	ACK						00h
S2	NN = 05h	Length of data					05h
S3						00h	00h
S4							00h
S5-6	TW				DATA2c	8000h	8000h
S7							00h, 14h

Answer from ECh:

The ~~solar circuit~~solar circuit seems not to report any useful data:

Byte -No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
S1	ACK						00h
S2	NN = 05h	Length of data					05h
S3						00h	00h
S4							00h
S5-6					DATA2c	8000h	8000h
S7							00h

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]	FF21h	Speicherfühler (SP1)
S5-6	SP2	Service water temperature (boiler bottom sensor)	“C		DATA2c [1/16]	FF21h	Speicherfühler (SP2)
S7-8	SP3		°C		DATA2c [1/16]	FF21h	Speicherfühler (SP3)
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:	This command reads the values of the temperature sensors SP1, SP2, SP3, TD1 (=SP4) and TD2 (=RF). VRS620: The command is sent every 20s only in page C5/C6 “Solar ~~cylinder~~storage Information”
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 = 10h	Block 10h					10h
M7	CRC						D8h
S1	ACK						00h
S2	NN = 0Ah	Length of data					0Ah
S3-4	SP1	~~Cylinder~~Storage temper~~ae~~ture sensor top	°C		DATA2c	8000h	Speicherfühler 1 (SP1)
S5-6	SP2	~~Cylinder~~Storage temperature sensor bottom	“C		DATA2c	8000h	Speicherfühler 2 (SP2)
S7-8	SP3	~~Cylinder~~Storage temperature sensor ~~swimming pool~~3	“C		DATA2c	8000h	Speicherfühler 3 (SP3)
S9-10	TD1	Differential temperature sensor heating support	“C		DATA2c	8000h	~~Speicherfühler 4 (SP4)~~
S11-12	TD2	Differential temperature sensor heating support	°C		DATA2c	8000h	~~Heizungsuntertütz. (RF)~~
S13	CRC						
M8	ACK						
M9	SYN						

3.1.10 Block 11h – SolarParameters

Name:	Get Data Block Solar Parameters (B5h 04h - Block 11h)

Description:	This command reads the system parameters of the solar circuits. The parameters are set with the commands • 05h 1Ah • 05h 1Bh • 05h 1Dh • 05h 1Eh
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					
M4	SB = 04h	Get Data Block					
M5	NN = 01h	Length of data					
M6	DB = 11h	Block 11h					
M7	CRC						
S1	ACK						
S2	NN = 06h	Length of data					
S3	TM1	SOL1 Max. Temperature	°C	35-80	DATA1b		VRS560: 20-80 Changed by Vaillant 05h 1Ah Set~~Cylinder~~StorageMax-TempSolar1
S4	TA1	SOL1 ~~Activation Difference~~HysteresisOn	K	5-12	DATA1b		Changed by 05h 1Bh Set~~Cylinder~~StorageHysteresisSolar1
S5	TO1	SOL1 ~~Deactivation Difference~~HysteresisOff	K	1-10	DATA1b		Changed by 05h 1Bh Set~~Cylinder~~StorageHysteresisSolar1
S6	TM2	SOL2 Max. Temperature	°C	35-80	DATA1b		VRS560: 20-80 Changed by Vaillant 05h 1Dh Set~~Cylinder~~StorageMax-TempSolar2
S7	TA2	SOL2 ~~Activation Difference~~HysteresisOn	K	5-12	DATA1b		Changed by 05h 1Eh Set~~Cylinder~~StorageHysteresisSolar2
S8	TO2	SOL2 ~~Deactivation Difference~~HysteresisOff	K	1-10	DATA1b		Changed by 05h 1Eh Set~~Cylinder~~StorageHysteresisSolar2
							(WDH für 3. Solarkreis ?? Oder Führungsspeicher
S9	CRC						
M8	ACK						

M9	SYN						

3.1.11 Block 12h – Solar1

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

Description:	This message informs about the status of the ~~solar circuit~~solar circuits.
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	~~KOL~~COL1	Collector array 1 temperature	°C		DATA2c		Kollektorfühler (~~KOL~~COL1)
S5	~~KOL~~COL1 ST	Collector array 1 status: BIT0: pump on/off			BYTE		Pumpenstatus: 00h = OFF 01h = LOAD
S6-7	~~KOL~~COL1 RP	Collector array 1 run-time ~~solar circuit~~solar circuit pump	h		WORD		Laufzeit Solarpumpe
8-9	~~KOL~~COL2	Collector array 2 temperature	°C		DATA2c		Kollektorfühler (~~KOL~~COL2)
S10	~~KOL~~COL2 ST	Collector array 2 status: BIT0: pump on/off			BYTE		Pumpenstatus: 00h = OFF 01h = LOAD
S11-12	COL~~KOL~~2 RP	Collector array 2 run-time ~~solar circuit~~solar circuit pump	h		WORD		Laufzeit Solarpumpe
S13	CRC						
M8	ACK						00h
M9	SYN						AAh

3.1.12 Block 13h – Solar2

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

Description:	This message informs about the daily solar yield.
Comm. Load:	Cycle rate: 1/24h (at midnight) 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					
M4	SB=04h	Get Data Block					
M5	NN=01h	Length of data					
M6	DB=13h	Block 13h					
M7	CRC						
S1	ACK						
S2	NN=09h	Length of data					
S3-4	SY	solar yield	KWh		WORD		Solarertrag
S5		solar yield (byte 3)?					00h Kann nicht sein, Register ist ULONG
S6-7	FR	solar flow rate	l/h	0 -9990	WORD		Kann nicht sein
S8							00h
S9	ED	ED Pump Control 00h: off 01h: on					
S10							01h
S11							03h
S12	CRC						
M8	ACK						
M9	SYN						

3.1.13 Block 17h – ServiceWaterDayTime

Name:	Get Data Block ServiceWaterDayTime (B5h 04h - Block 17h)

Description:
Comm. Load:

Master/ Slave Byte-No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
M1	QQ	Source address					(unknown)
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=17h	Block 17h					17h
M7	CRC						DAh
S1	ACK						00h
S2	NN=01h	Length of data					01h
S3	AA	Service time for service water	On/Off		BYTE		
S4	CRC						
M8	ACK						
M9	SYN						

3.1.14 Block 18h – HeatingLeadTemperatureHK2 (Nicht mit vrs620)

Name:	Get Data Block HeatingLeadTemperatureHK2 (B5h 04h - Block 18h)

Description:
Comm. Load:

Master/ Slave Byte-No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
M1	QQ	Source address					(unknown)
M2	ZZ	Target address					50h
M3	PB=B5h	Vaillant command					B5h
M4	SB=04h	Get Data Block					04h
M5	NN=01h	Length of data					01h
M6	DB=18h	Block 18h					18h
M7	CRC						E7h
S1	ACK						00h
S2	NN=06h	Length of data					06h
S3-4	HK2_TT	HK2 boiler target temperature including fast temp increase	°C		DATA2b		
S5							00h
S6-7	HK2_VT	HK2 flow temperature	°C		DATA2c		
S8							13h, 15h
S9	CRC						
M8	ACK						
M9	SYN						

3.1.15 Block 21h – ServiceWaterStorage

Name:	Get Data Block ServiceWaterStorage(B5h 04h - Block 21h)

Description:
Comm. Load:

Master/ Slave Byte-No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
M1	QQ	Source address					(unknown)
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=21h	Block 21h					21h
M7	CRC						
S1	ACK						00h
S2	NN=05h	Length of data					05h
S3	CC	Collector temperature	°C		CHAR		
S4	DD						00h
S5	EE	Heater source: 0: off 1: solar 2: heater			BYTE		
S6	FF	Storage level	%		CHAR		Same as percentage display in basic menu.
S7	GG	Power	%		CHAR		Same as power display in basic menu.
S8	CRC						
M8	ACK						00h
M9	SYN						AAH

3.1.16 Block 22h – Unknown

Name:	Get Data Block Unknown(B5h 04h - Block 22h)

Description:
Comm. Load:

Master/ Slave Byte-No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
M1	QQ	Source address					(unknown)
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=22h	Block 22h					22h
M7	CRC						
S1	ACK						00h
S2	NN=03h	Length of data					03h
S3							00h
S4							04h
S5							07h
S6	CRC						
M8	ACK						00h
M9	SYN						AAH

3.1.17 Block 25h – Unknown

Name:	Get Data Block Unknown(B5h 04h - Block 25h)

Description:
Comm. Load:

Master/ Slave Byte-No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
M1	QQ	Source address					(unknown)
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=25h	Block 25h					25h
M7	CRC						
S1	ACK						00h
S2	NN=02h	Length of data					02h
S3							07h
S4							03h
S5	CRC						
M8	ACK						00h
M9	SYN						AAH

3.1.18 Block 26h – VR81RemoteControlUnitForVRC

Name:	**Get Data Block VR81RemoteControlUnitForVRC (B5h 04h - Block 26h)**

Description:	VR81 remote control unit for VRC430 / 470 The current room temperature (RC) is unreliable and should not be used. Instead, use the data coming from B5 05 3C. Target room temperature (RS) seems to be missing if it is set to 22°C.
Comm. Load:	

Master/ Slave Byte-No.	**Abbrev.**	**Description**	**Unit**	**Range**	**Type/ [Res.]**	**Repl. Value**	**Note**
M1	QQ	Source address					30h
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=26h	Block 26h					26h
M7	CRC						
S1	ACK						00h
S2	NN=07h	Length of data					07h
S3							
S4	MO	Current Mode of operation: 00h: heating disabled 02h: day 03h: day 04h: night			BYTE		
S5							
S6	RS	Target room temperature	°C		DATA1c		
S7							
S8-9	RC	Current room temperature (corrected by offset value)	°C		DATA2c		
S10	CRC						
M8	ACK						00h
M9	SYN						AAH

3.1.19 Block 28h – Unknown

Name:	Get Data Block Unknown (B5h 04h - Block 28h)

Description:
Comm. Load:

Master/ Slave Byte-No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
M1	QQ	Source address					(unknown)
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=28h	Block 28h					28h
M7	CRC						
S1	ACK						00h
S2	NN=03h	Length of data					03h
S3-4	SE	Solar yieldgain	kWh		WORD		
S5							00h
S6	CRC						
M8	ACK						00h
M9	SYN						AAH

3.1.20 Block 36 – Unknown

Name:	Get Data Block Unknown (B5h 04h - Block 36h)

Description:
Comm. Load:

Master/ Slave Byte-No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
M1	QQ	Source address					(unknown)
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=36h	Block 36h					36h
M7	CRC						
S1	ACK						00h
S2	NN=01h	Length of data					01h
S3							00
S4	CRC						9B
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:	This command typically can be observed when parameters have been changed by 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					
M3	PB = B5h	Vaillant command					
M4	SB = 05h	Burner Operational Data					
M5	NN	Length of data					
M6	TB	01h: SetTargetTemperature 02h: SetOperationMode 09h: SetTimerProgram 0Ah: SetNightTemperatureHK1 0Bh: SetHeatingTemperatiureRatio 11h: SwitchSWLoadingPunpDelay 12h: SetSWLoadingPumpDelay 13h: SwitchLegionnairsDiseaseProtection 14h: SwitchParallelLoading 1Ah: Set~~Cylinder~~storageMaxTempSolar1 1Bh: Set~~Cylinder~~storageHysteresisSolar1 1Ch: SetOutsideTempCorr 1Dh:Set~~Cylinder~~storageMaxTempSolar2 1Eh: Set~~Cylinder~~storageHysteresisSolar2 20h: ResetSolarYieldKOL1 21h: SetSolarFlowRate 23h: SwitchEDPumpControl 27h: HeatingStatus 2Bh: SetSystemParameters 2Dh: (unknown) 3Ch: VR81RemoteControlUnitForVRC					
...	...	...	...	...	...	...	...

All single commands are shown in detail on the next pages

3.2.1 05h 01h SetTargetTemperature

Name:	**Set TargetTemperature (B5h 05h 01h)**

Description:	This command is sent when the target temperature of the addressed circuit 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, 26h, FEh
M3	PB = B5h	Vaillant command					
M4	SB = 05h	Set Operational Data					
M5	NN = 02h	Length of data					
M6	TB = 01h	SetTargetTemperature					VRS620: Warmwasser Speichersoll
M7	TT	Target Temperature: DHW: ~~cylinder~~storage target temperature HK1: room target temperature	°C		DATA1b		
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 02h SetOperationMode

Name:	SetOperationMode (B5h 05h 02h)

Description:	This command is sent when the operation mode of a circuit has to be changed.
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 = 05h	Set Operational Data					
M5	NN = 02h	Length of data					
M6	TB = 02h	SetOperationMode					
M7	TT	Operation Mode: 01h: on (heating) 02h: off 03h: auto 04h: eco 05h: night ~~set back~~fallback			BYTE		
M8	CRC						
S1	ACK						00h
S2	NN = 00h						00h
S3	CRC						00h
M9	ACK						00h
M10	SYN						AAh

The following modes are possible for the different circuits:

Circuit type	Operation modes	Note
~~Heating circuit~~heating circuits HK1 (26h) HK2	02h: OFF 03h: AUTO 04h: ECO 05h: Night ~~NIGHT~~ ~~SET BACK~~fallback mode ~~MODE~~	
DHW circuits DHW (25h)	01h: ON 02h: OFF 03h: AUTO	
~~Solar circuit~~solar circuits KOL1 (ECh)	02h: AUS 03h: AUTO	

3.2.3 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						

3.2.4 05h 0Ah SetNightRoomTemperatureHK1

Name:	**SetNightRoomTemperatureHK1 (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						

3.2.5 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						

3.2.6 05h 0Ch SetMaxLimitOutsTemp

Name:	**SetMaxLimitOutsTemp (B5h 05h 0Ch)**

Description:	This command is sent when the maximum limit for the outside temperetaure 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					26h
M3	PB = B5h	Vaillant command					
M4	SB = 05h	Set Operational Data					
M5	NN = 02h	Length of data					
M6	TB = 0Ch	SetMaxLimitsOutsTemp					
M7	OT	Max limit outside temperature	°C	5..50	DATA1b		
M8	CRC						

ZZ == FEh (broadcast):

M10	SYN						

ZZ != FEh (target)

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

3.2.7 05h 0Eh SetMinFlowTemp

Name:	**SetMinFlowTemp (B5h 05h 0Eh)**

Description:	This command is sent when the minimum temperature of the ~~heating circuit~~heating circuit 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					26h
M3	PB = B5h	Vaillant command					
M4	SB = 05h	Set Operational Data					
M5	NN = 02h	Length of data					
M6	TB = 0Eh	SetMinFlowTemp					
M7	MFT	Min flow temperature	°C	15..90	DATA1b		
M8	CRC						

ZZ == FEh (broadcast):

M10	SYN						

ZZ != FEh (target)

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

3.2.8 05h 0Fh SetMaxFlowTemp

Name:	SetMaxFlowTemp (B5h 05h 0Fh)

Description:	This command is sent when the maximum temperature of the ~~heating circuit~~heating circuit 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					26h
M3	PB = B5h	Vaillant command					
M4	SB = 05h	Set Operational Data					
M5	NN = 02h	Length of data					
M6	TB = 0Fh	SetMaxFlowTemp					
M7	MFT	Max flow temperature	°C	15..90	DATA1b		
M8	CRC						

ZZ == FEh (broadcast):

M10	SYN						

ZZ != FEh (target)

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

3.2.9 05h 10h SetMaxPreheating

Name:	SetMaxPreheating (B5h 05h 10h)

Description:	This command is sent when the maximum preheating time the ~~heating circuit~~heating circuit 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					26h
M3	PB = B5h	Vaillant command					
M4	SB = 05h	Set Operational Data					
M5	NN = 02h	Length of data					
M6	TB = 10h	SetMaxPreheating					
M7	MFT	Max preheating time	h	0..5	DATA1b		
M8	CRC						

ZZ == FEh (broadcast):

M10	SYN						

ZZ != FEh (target)

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

3.2.10 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						

3.2.11 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						

3.2.12 05h 13h SwitchLegionnairsDiseaseProtection

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	SwitchLegionnairsDiseaseProtection					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						

3.2.13 05h 14h SwitchParallelLoading

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

Description:	This command defines if the service water ~~cylinder~~storage is allowed to be loaded in parallel by the solar collector and the boilder. 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						

3.2.14 05h 15h SetMaxPreDeactivationTime

Name:	**Set Max Pre Deactivation Time (B5h 05h 23h)**

Description:	This command sets the max time when re-heating is suppressed before the heating system will switch off. VRS620 Changes are also sent in parallel by using 05h 2Bh
Comm. Load:	

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 = 02h	Length of data					
M6	TB = 15h	SetMaxPreDeactivationTime					
M7	PM	Max. Pre-Deactivation Value	min	15-120	DATA1b		VRS620: Gesamtsystem Max. Vorabschaltung
M8	CRC						

ZZ == FEh (broadcast):

M9	SYN						

ZZ != FEh (target)

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

3.2.15 05h 1Ah Set~~Cylinder~~StorageMaxTempSolar1

Name:	Set ~~Cylinder~~Storage Max Temp Solar1 (B5h 05h 1Ah)
Description:	This command defines the maximum temperature of the service water ~~cylinder~~storage loaded by solar collector 1. It is sent when the settings has been changed. Written data can be read by the command B5h 04h Block 11h.
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					
M4	SB = 05h	Set Operational Data					
M5	NN = 02h	Length of data					
M6	TB = 1Ah	Set~~Cylinder~~StorageMaxTempSolar1					VRS620: Solarspeicher Maximaltemperatur
M7	TM	Maximum Temperature	°C	35-80	DATA1b		
M8	CRC						

ZZ == FEh (broadcast):

M9	SYN						

ZZ != FEh (target)

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

3.2.16 05h 1Bh Set~~Cylinder~~Storage~~Cylinder~~HysteresisSolar1

Name:	Set ~~Cylinder~~Storage Hysteresis Solar1 (B5h 05h 1Bh)

Description:	This command defines the activation difference and deactivation difference of the service water ~~cylinder~~storage loaded by solar collector 1. It is sent when the settings has been changed. Written data can be read by the command B5h 04h Block 11h.
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					
M4	SB = 05h	Set Operational Data					
M5	NN = 03h	Length of data					
M6	TB = 1Bh	Set~~Cylinders~~Sorage~~Cylinder~~HysteresisSolar1					
M7	TA1	Activation Difference	K	5-12	DATA1b		Should always be 2K greater than TO1 VRS620: Solarspeicher Einschaltdifferenzr
M8	TO1	Deactivation Difference	K	1-10	DATA1b		VRS620: Solarspeicher Ausschaltdifferenz
M9	CRC						

ZZ == FEh (broadcast):

M10	SYN						

ZZ != FEh (target)

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

3.2.17 05h 1Ch SetOutsideTempOffset~~Corr~~

Name:	SetOutsideTempOffset~~Corr~~ (B5h 05h 1Ch)

Description:	This command sets the outside temperature correction.
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					
M4	SB = 05h	Set Operational Data					
M5	NN = 02h	Length of data					
M6	TB = 1Ch	SetOutsideTempOffset~~Corr~~					
M7	OTC	Outside temperature correction	K	-5 .. 5	DATA1b		VRS620: Temperaturkorrektur Aussentemperatur
M8	CRC						

ZZ == FEh (broadcast):

M9	SYN						

ZZ != FEh (target)

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

3.2.18 05h 1Dh Set~~Cylinder~~Storage MaxTempSolar2

Name:	Set ~~Cylinder~~storage Max Temp Solar2 (B5h 05h 1Dh)

Description:	This command defines the maximum temperature of the service water ~~cylinder~~storage loaded by solar collector 2. It is sent when the settings has been changed. Written data can be read by the command B5h 04h Block 11h.
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					
M4	SB = 05h	Set Operational Data					
M5	NN = 02h	Length of data					
M6	TB = 1Dh	Set~~Cylinder~~StorageMaxTempSolar2					VRS620: Solarspeicher 2 Maximaltemperatur
M7	TM	Maximum Temperature	°C	35-80	DATA1b		
M8	CRC						

ZZ == FEh (broadcast):

M9	SYN						

ZZ != FEh (target)

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

3.2.19 05h 1Eh Set~~Cylinder~~StorageHysteresisSolar2

Name:	Set ~~Cylinder~~Storage Hysteresis Solar2 (B5h 05h 1Eh)

Description:	This command defines the activation difference and deactivation difference of the service water ~~cylinder~~storage loaded by solar collector 2. It is sent when the settings has been changed. Written data can be read by the command B5h 04h Block 11h.
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					
M4	SB = 05h	Set Operational Data					
M5	NN = 03h	Length of data					
M6	TB = 1Eh	Set~~Cylinder~~StorageHysteresisSolar2					
M7	TA2	Activation Difference	K	5-12	DATA1b		Should always be 2K greater than TO1 VRS620: Solarspeicher 2 Einschaltdifferenzr
M8	TO2	Deactivation Difference	K	1-10	DATA1b		VRS620: Solarspeicher 2 Ausschaltdifferenz
M9	CRC						

ZZ == FEh (broadcast):

M10	SYN						

ZZ != FEh (target)

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

3.2.20 05h 20h ResetSolarYieldKOL1

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

Description:	This command defines if the service water ~~cylinder~~storage is allowed to be loaded in parallel by the solar collector and the boilder. 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						

3.2.21 05h 21h SetSolarFlowRate

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

Description:	This command defines if the service water ~~cylinder~~storage is allowed to be loaded in parallel by the solar collector and the burner. 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	SF	Solar flow rate	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						

3.2.22 05h 23h SwitchEDPumpControl

Name:	**Switch ED Pump Control (B5h 05h 23h)**

Description:	This command switches the duration controlling for the ~~solar circuit~~solar circuit pump on or off. It is sent when the settings has been changed. Written data can be read by the command B5h 04h Block 13h.
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					
M4	SB = 05h	Set Operational Data					
M5	NN = 02h	Length of data					
M6	TB = 23h	SwitchEDPumpControl					Duration Controlling
M7	00h 01h	Off On			BYTE		VRS620: Solarkreis ED-Steuerung
M8	CRC						

ZZ == FEh (broadcast):

M9	SYN						

ZZ != FEh (target)

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

3.2.23 05h 27h HeatingStatus

Name:	HeatingStatus (B5h 05h 27h)

Description:	This is sent regularly by the VRS620. It seems to report about he status of the heating system. 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					FEh
M3	PB = B5h	Vaillant command					
M4	SB = 05h	Set Operational Data					
M5	NN = 04h	Length of data					
M6	TB = 27h	HeatingStatus					
M7		Bit0 = BW_load			BYTE		00h, 01h This bit is active when service water is loaded.
M8	VF1	flow temperature	°C	0-89	CHAR	5Ah	
M9		Bit0 = BW_load			BYTE		00h, 01h This bit seems to be synchronous to M7 Bit0.
M10	CRC						

ZZ == FEh (broadcast):

M11	SYN						

3.2.24 05h 2Bh SetSystemParameters

Name:	**SetSystemParameters (B5h 05h 2Bh)**

Description:	This is sent regularely 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
M4	SB = 05h	Set Operational Data					05h
M5	NN = 07h	Length of data					07h
M6	TB = 2Bh	Unknowns					2B
M7	PM	Max. Pre Deactivation Time	min	15 .. 120	DATA1b		Max. Vorabschaltung
M8	FD	Frost protection delay	h	0 .. 12	DATA1b		Frostschutzverzög.
M9	TI	Fast temp increase	K	0 .. 15	DATA1b		Temp.Überhöhung
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						

3.2.25 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**	(Raumaufschaltung)
M1	QQ	Source address					VRS620	
M2	ZZ	Target address					26h	26h
M3	PB = B5h	Vaillant command						
M4	SB = 05h	Set Operational Data						
M5	NN = 04h	Length of data						
M6	TB = 2Dh	Unknown					2D	2Dh
M7		Bit0 = BW_load			BYTE		00h	E6h
M8	VT	Lead water temperature	°C	0-89	CHAR	5Ah	00h	FFh
M9		Bit0 = BW_load			BYTE		00h	00h
M10	CRC							

ZZ == FEh (broadcast):

M11	SYN						

ZZ != FEh (target)

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

3.2.26 05h 3Ch VR81RemoteControlUnitForVRC

Name:	VR81RemoteControlUnitForVRC (B5h 05h 2Bh)

Description:	This message can be used to determine the current room temperature reliably. The target room temperature and the current heating status (off, day, night) can be found in B5h 04h 26h
Comm. Load:	

Master / Slave Byte-No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
M1	QQ	Source address					30h
M2	ZZ	Target address					26h
M3	PB = B5h	Vaillant command					B5h
M4	SB = 05h	Set Operational Data					05h
M5	NN = 05h	Length of data					05h
M6	TB = 3Ch	Block 3Ch					3Ch
M7-8	RC	Current room temperature (not corrected by offset value)	°C		DATA2c		
M9-10	RCO	Current room temperature (corrected by offset value)	°C		DATA2c		
M13	CRC						

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 or Set device ~~Configuration or Status~~register

The **Get ~~/ Set~~ Device ~~Configuration or Status~~Register** command is used for requesting specific data from ~~other~~ eBus devices. It is used by ~~the~~ vrDialog software to read ~~and display~~ device configuration and status data ~~on the screen, or set device parameters~~. Each device has a number of ~~parameter~~registers that can be read or set using this command.

3.4.1 Block 0Dh - Get~~DeviceConfigOrStatus~~Register

Name:	Get~~DeviceConfigOrStatus~~Register (Service B5h 09h - Block 0Dh)
Description:	The 0Dh command seems to be implemented by all Vaillant eBus devices. The vrDialog application includes a file vrDIALOG810.mdb, that contains an MS Access database used internally by vrDialog. This database can be accessed in order to read different configuration parameters for different supported types of Vaillant eBus devices. It is not ensured that the answer always will have a length of 03h.
Comm. Load:	

Master/ Slave Byte-No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
M1	QQ	Source address					
M2	ZZ	Target address					15h, ECh
M3	PB = B5h	Vaillant command					
M4	SB = 09h	B5 09 Command					
M5	NN = 03h	Length of data					
M6	DB = 0Dh	0Dh command					
M7-8	ADDR	~~Sensor~~Register address: ~~00h: SP1~~ ~~01h: SP2~~ ~~02h: SP3~~ ~~03h: KOL1~~ ~~04h: KOL2~~ ~~05h: Gain~~	 ~~°C~~ ~~°C~~ ~~°C~~ ~~°C~~ ~~°C~~		WORD		 ~~SP1~~ ~~SP2~~ ~~SP3~~ ~~Kol1~~ ~~Kol2~~ ~~Ertrag~~
M9	CRC						
S1	ACK						
S2	NN = ~~03h~~xx	Length of data					
S3...xx~~-4~~	DATA~~SV~~	See following table			~~DATA2c~~		
~~S5~~	~~SS~~	~~Sensor status:~~ ~~00h: sensor connected~~ ~~AAh: no sensor connected~~			~~CHAR~~		
Sxx~~+6~~	CRC						
M10	ACK						
M11	SYN						

Other values for ADDR (answer may differ in length and content):

Addr	Name	Type
0Fh:	Current room temperature	temperature sensor
26h:	Status DCF	DCFState
28h:	Is in holiday	uchar
29h:	Is in party	OnOff
2Ah:	Is in single DHW loading mode	OnOff
2Ch:	Is in savings function	OnOff
2Dh:	Savings function time	SaveFunction
31h:	Is in quick veto	OnOff
32h	Quick veto temperature	Tlte
57h:	Actual room temperature set point	Tlte

MS7-8 ADDR	Description	Unit	Range	Type	No. Bytes	Note
0600h	SolarYield	kWh		Unsigned long	4	
0E00h	IsInHoliday		00h, 01h	Char	1	
1F00h	RoomTempOffset	°C		Unsigned short	2	
2100h	OutsideTempOffset	°C		Unsigned short	2	
2200h	RoomTempHoliday	°C		Unsigned short	2	
2500h	MinTempBurner	°C		Unsigned short	2	
2B00h	ServiceDate			Date	3	dd mm yy
2C00h	Password		-	BCD	4	
3600h	LcdContrast		00h-11h	Char	1	
4100h	HCname			String	10	heating circuit name
4300h	HolidayPeriod			Date	12	4x dd mm yy
5F00h	Time			Time	3	ss min hh
6100h	Date			Date	3	dd mm yy
6B00h	StartHolidayPeriod1			Status, Date	1, 3	dd mm yy
6C00h	EndHolidayPeriod1			Status, Date	1, 3	dd mm yy

3.4.2 Block 0Eh - Set~~ConfigOrStatusDevice~~Register

Name:	**Set~~ConfigOrStatusDevice~~Register (Service B5h 09h - Block 0Eh)**
Description:	This command works in a similar way as 0Dh~~, but instead of returning configuration from the device, it sets device configuration.~~
Comm. Load:	

Master/ Slave Byte-No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
M1	QQ	Source address					
M2	ZZ	Target address					10h, 15h, ECh
M3	PB = B5h	Vaillant command					
M4	SB = 09h	B5 09 Command					
M5	NN	Length of data					Depends on type of parameter that is being set.
M6	DB = 0Eh	0Eh command					
M7-8	ADDR	Parameter address			WORD		See command 0Dh
M9	CRC						
M10-xx		Data to be sent					See command 0Dh
Mxx+1	CRC						
S1	ACK						
S2	NN = 00h	Length of data					
S6	CRC						
MXX+2	ACK						
MXX+3	SYN						

3.4.3 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 = 18_h	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~~/ Anlagen~~temperatur)	°C	0 – 100	DATA1c		
S4	NT	Return water temperature (Rückl~~Nachl~~auftemperatur)	°C	0 – 100	DATA1c		
S5	TA_L	Outside temperature	°C	-50,0 – 50,0	DATA2b [1/256]		
S6	TA_H						
S7	WT	(WW-Auslauftemperatur)	°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						

3.6.1 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						

3.7 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 hot water circulating pump is off
  xx = 00h, yy = 64h hot water circulation pump is on

- Firing Automat 1 (Master 03h) → Pump 1 (Slave 64h):
  xx = 02h, yy = 00h internal pump is off
  xx = 02h, yy = 64h internal pump is on and operating in the service water circuit
  xx = 02h, yy = FEh internal pump is on and operating in the ~~heating circuit~~heating circuit
  xx = 03h, yy = 00h internal pump is disabled due to error condition (e.g. low water pressure)

- Firing Automat 1 (Master 03h) → PC/ Modem (Slave 05h):
  xx = 03h, yy = 00h

3.8 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						

3.9 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 Non-prorietary Commands

Vaillant does not follow standard eBUS commands specifications and mostly uses proprietary commands (B5h). Nevertheless, here is the standard messages I have found with my VRS620:

4.1 05h 01h – Operational Data of Room Controller to Burner Control Unit

Name:	**Operational Data of Room Controller to Burner Control Unit (05h 01h)**

Description:
Comm. Load:

Outside Temperature:

Master/ Slave Byte-No.	**Abbrev.**	**Description**	**Unit**	**Range**	**Type/ [Res.]**	**Repl. Value**	**Note**
M1	QQ	Source address					VRS620
M2	ZZ = 3Fh	Target address					3Fh
M3	PB = 05h	Burner control command					05h
M4	SB =01h	Operational data controller					01h
M5	NN = 05h	Length of data					05h
M6	ST	Status heat request: 00h: shut down burner 55h: service water preparation AAh: heating operation CCh: Emision check DDh: QC service function EEh: controller stop function			BYTE		00h
M7	BT	Boiler target value	°C	0 .. 100	data1b		
M8	WT	Service water target value	°C	0 .. 100	data1b		Always seems to follow M7 (BT). So, in heating mode, this value is VF1 target temp.
M9	OT	Outside temp effective value	°C	-50 .. 50	data1b		0Eh
M10	DS	Degree of setting	%	0 .. 100	data1b		00h
M11	CRC						
M12	ACK						00h

4.2 07h 04h – Identification

Name:	Identification (07h 04h)

Description:
Comm. Load:

Outside Temperature:

Master/ Slave Byte-No.	Abbrev.	Description	Unit	Range	Type/ [Res.]	Repl. Value	Note
M1	QQ	Source address					10h=VRS620
M2	ZZ = 26h	Target address					26h
M3	PB = 07h	System command					07h
M4	SB =04h	Identification					04h
M5	NN = 00h	Length of data					00h
M6	CRC						FAh
S1	ACK						00h
S2	NN = 0Ah						0Ah
S3	HH	Producer: Vaillant		0 .. 99	BYTE		B5h
S4-8	gg	Device ID: “SOLSY”		ASCII	5*BYTE		53h 4Fh 4Ch 53h 59h
S9-10	vvs	SW-Version: 2.07					02h 07h
S11-12	vvh	HW-Version: 63.01					63h 01h
S13	CRC						30h
M7	ACK						00h
M8	SYN						

4.3 FEh 01h – Error Message

Name:	**Error Message (FEh 01h)**

Description:
Comm. Load:

Outside Temperature:

Master/ Slave Byte-No.	**Abbrev.**	**Description**	**Unit**	**Range**	**Type/ [Res.]**	**Repl. Value**	**Note**
M1	QQ	Source address					VRS620
M2	ZZ = FEh	Target address (broadcast)					FEh
M3	PB = FEh	General broadcast message					FEh
M4	SB =01h	Error message					01h
M5	NN = 0Ah	Length of data					0Ah
M6	DB1						55h
M7	DB2						49h
M8	DB3						00h
M9	DB4						00h
M10	DB5	Adress?					26h
M11	DB6	Error code?: 01h: Adresse nicht erreichbar 02h: Wartung notwendig 03h: Heizgerät auf Störung 04h: Ausfall Sensor 05h: Sollwert nicht erreicht					
M12	DB7	Defect: For error code 04h: 08h: KOL2 0A/04/00/03 VF3/SP2/VF1/SP1 For error code 05h 01h: HK1 10h: Boiler					Exact mapping unknown
M13	DB8						00h
M14	DB9						00h
M15	DB10						00h
M16	CRC						
M15	SYN						

Examples

55 49 00 00 26 04 08 00 00 00	error code 4:	VRS620 Ausfall Sensor KOL2
55 49 00 00 26 05 10 00 00 00	error code 5:	Boiler did not reach its target temperature
55 49 00 00 26 05 01 00 00 00	error code 5:	HK1 did not reach its target temperature

5 History

2014-05-29	V0.6.0	3.1 Service B5h 01h: some definitions added 3.2 Service B5h 05h: B5h 05h 02h (SetOperationMode) B5h 05h 0Ch (SetMaxLimitOutsTemp) B5h 05h 0Eh (SetMinFlowTemp) B5h 05h 0Fh (SetMaxFlowTemp) B5h 05h 10h (SetMaxPreheating) B5h 05h 1Ch (SetOutsideTempCorr) B5h 05h 2Bh (SetSystemParameters) 4.1 Service 05h 01h: 05h 01h (Burner Operational Data) 4.2 Service 07h 04h: 07h 04h (Identification)
2014-05-27	V0.5.0	3.1 Service B5h 04h: updates and new services 3.2 Service B5h 05h: updates and new services 3.4 Service B5h 09h: added service 09h 0Dh 4.Service FEh 01h: added
2010-03-22	V0.4.0	3.1.2 Service B5h 04h Block 01h: definition of S3 for target 25h 3.1.3 Service B5h 04h Block 02h-08h: added 3.1.4 Service B5h 04h Block 09h: definition of S3 for target 25h 3.1.5 Service B5h 04h Block 0Ah: some definitions added 3.1.7 ervice B5h 04h Block 0Dh: definition of S7 for target 25h 3.1.12 Service B5h 04h Block 12h: definition of S6-7 3.2 Service B5h 05h: restructured and many commands added
2010-03-18	V0.3.0	3.1 Service B5h 04h: added general description 3.1.4 Service B5h 04h Block 0Ah: added 3.1.5 Service B5h 04h Block 0Bh: added 3.1.6 Service B5h 04h Block 0Dh: added lead temperature and status bits 3.1.7 Service B5h 04h Block 0Fh: renamed to “Service Water” 3.1.8 Service B5h 04h Block 10h: added” 3.1.10 Service B5h 04h Block 12h: renamed to “Solar1” confirmed S6-7 Runtime solar pump added S8-9 temperature KOL2 3.1.11 Service B5h 04h Block 13h: added as “Solar2” 3.2 Service B5h 05h: added new variant (not a broadcast)
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.