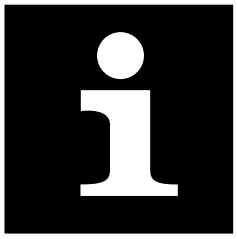
Entwicklungsinformation
Development Information



KEB Info **Protokollbeschreibung DIN66019II**
Protocol Description DIN66019II

C0.F5.011-K001

05/2001

Protocol definition DIN66019II

File - Info

Name: f:\daten\common\entwicklungsinfos\kommunikation\66019ii.doc
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Modifications

Author	Date	Changed:
Kaiser	25.09.1997	First protocol definition
Kaiser	15.01.1998	Service 9 adapted to HSP5, new service 12
Kaiser	05.02.1998	New Service 18
Kaiser	10.02.1998	Service 48/49 RSP modified
Kaiser	04.03.1998	Invoke-ID implemented
Kaiser	16.03.1998	Old 66019-telegrams written, status interrogation defined
Kaiser	29.02.2000	Old 66019-telegrams termed as service –1
Kaiser	27.03.2000	Description of error codes extended
Kaiser	13.12.2000	Complete revision, examples added, HSP5-parts removed

1 Legend

The following terms are used in this description:

Text	Meaning
123	Decimal number 123
-1	Decimal number –1
22h	Hexadecimal representation of the number 34
'0'	Single character
'12AB'	Character string (here:ASCII-coding)
'OP-Parameter'	Character string (here:Text)
Master	Control or computer, that writes or reads the parameters
Request	Master sends a write or read job
Response	Response of the inverter to a request

The addresses used in this description only serve as example. The really possible parameter addresses and value ranges are to be taken from the application manual of the respective inverter.

2 Character Definition

2.1 Format:

Serial, asynchronous, 1 start bit, 7 data bits, 1 even parity bit, 1 stop bit
Baudrate arbitrary; typical 9600..38400 Baud depending on the inverter
Slip monitoring (time between neighbouring characters) does not take place
Response time depends on the unit, typically 1..5 ms

2.2 Character Coding:

Control characters:

EOT = 04h	ENQ = 05h	STX = 02h	ETX = 03h	ACK = 06h	NAK = 15h

The control characters are transmitted directly without additional coding. As they are in the range below 20h, they can be easily differentiated from the ASCII-coded characters.

TXT:
Characters in the range 20h..7Fh, z.B. 'Run-Parameter'

ASCII:
‘0’ to ‘9’ and ‘A’ bis ‘F’ , also possible as character string.
The individual characters have the following priority:

Data value	Ascii-character	Ascii-Hex value	Data value	Ascii-character	Ascii-Hex value
0	'0'	30h	8	'8'	38h
1	'1'	31h	9	'9'	39h
2	'2'	32h	10	'A'	41h
3	'3'	33h	11	'B'	42h
4	'4'	34h	12	'C'	43h
5	'5'	35h	13	'D'	44h
6	'6'	36h	14	'E'	45h
7	'7'	37h	15	'F'	46h

Byte-, Word- or Long-values are represented by 2, 4 or 8 successive characters:

Character string	Ascii-Hex values	Data value calculation	Data value
'01'	30h,31h	0*16 + 1*1	1 (1h)
'7F'	37h,46h	7*16 + 15*1	127 (7Fh)
'2203'	32h,32h,30h,33h	2*4096 + 2*256 + 0*16 + 3*1	8707 (2203h)
'FFFF'	46h,46h,46h,46h	15*4096 + 15*256 + 15*16 + 15*1	65535 (FFFFh)
'12345678'	31h,32h,33h,34h,35h,36h,37h,38h	1*268435456 + 2*16777216 + 3*1048576 + 4*65536 + 5*4096 + 6*256 + 7*16 + 8*1	305419896 (12345678h)
'80000001'	38h,30h,30h,30h,30h,30h,30h,31h	8*268435456 + 0*16777216 + 0*1048576 + 0*65536 + 0*4096 + 0*256 + 0*16 + 1*1	2147483649 (80000001h)

Values, at which the 1. character is larger than 7 (37h), can also be regarded sign-afflicted as negative value (complement on two):

Hexadecimal	Without sign	With sign
8001h	32769	-32767
FFFFh	65535	-1
A0000000	2684354560	-1610612736
FFFFFFFFh	4294967295	-1

2.3 BCC

The BCC (Block Check Character) is used for the examination of the transmitted telegram and consists of a binary Exclusiv-OR connection of the sign to be considered. If the BCC is smaller than 20h, then 20h are added to it. Thus it is prevented, that the BCC appears as control character (e.g. EOT).

Depending on the telegram type the BCC is calculated from the following characters:

-DIN66019 Read Response and write Request: 1.character after STX to including ETX

STX	'0'	'3'	'0'	'F'	'F'	'F'	'F'	'C'	ETX	BCC
	30h	33h	30h	46h	46h	46h	46h	43h	03h	=73h

-DIN66019II Read Request: Character SERVICE to including ENQ

EOT	0	2	G	A	0	2	0	0	0	2	ENQ	BCC
			47h	41h	30h	32h	30h	30h	30h	32h	05h	3h(+20h)=23h

- DIN66019II Read Response and write Request: Character SEVICE to including ETX

STX	'G'	'1'	'0'	'0'	'0'	'0'	'0'	'0'	'4'	'6'	ETX	BCC
	47h	31h	30h	30h	30h	30h	30h	30h	34h	36h	03h	=77h

2.4 Invoke-ID (IID)

The Invoke-ID consists of a number (1..15) in ASCII-coding. Each request uses the IID which is higher by one than the previous request, after 15 ('F') it starts again with 1. An incoming Response has the same Invoke-ID as the appropriate Request. With that a Response can be assigned free of doubts to the appropriate Request.

2.5 Service

The service is transmitted as 1 character in ASCII-coding. It has an ASCII-offset of 47 H, i.e. service 0 is transmitted as character 'G' (47h), service 1 as 'H' (48h), service 16 as 'W' (57h), and so forth. Thus the service character is easily differentiated from the ASCII-value coding.

2.6 Error Codes

The error code is ASCII-coded, only 1 character:

Code	Meaning
1	Not ready
2	Address or password invalid
3	Data invalid
4	Parameter write-protected
5	BCC-error
6	Inverter / Operator busy
7	Service not available
8	Password invalid
9	Telegram-framing error: Wrong number of characters in the telegram
10	Transmission error: Overrun-, frame-, parity error of one or several transmitted characters
11	Set identification invalid
12	Set identification invalid
13	Address invalid
14	Operation not possible
15	Not used at present

3 Addressing of the Inverters

In the DIN66019II-protocol the communication always goes out from the only master in the bus (Master-Slave-access). A connection to a inverter is considered as set up until a protocol participant transmits the next EOT or the inverter does not answer. Therefore the inverter addressing is not necessary for each new telegram and can be omitted to save time.
The inverter-addressing always consists of the control character EOT (04h) and 2 following ASCII-characters with the inverter address:

EOT	Inverter ASCII	
04h	'0'	'1'

The following address ranges are possible:
0..239 individual address; 240..254 Multicast addresses; 255 Broadcast address

ASCII	Decimal	Address
'00'	0	Inverter 0
'01'	1	Inverter 1
..	..	..
'EE'	238	Inverter 238
'EF'	239	Inverter 239
'F0'	240	Inverter group 0, addresses the inverters with the addresses 0..15
'F1'	241	Inverter group 1, addresses the inverters with the addresses 16..31
..	..	..
'FE'	254	Inverter group 14, addresses the inverters with the addresses 224..239
'FF'	255	Broadcast, addresses all inverters (addresses 0..239)

Broadcast/Multicast : Here NO response takes place from any inverter. Therefore NO read jobs are possible.

4 Telegrams of the DIN66019-Protocol

These telegrams are compatible to the DIN66019 (ANSI X3.28 / ISO 1745) protocol, which is used in a multiple way since 1990.

4.1 Status Interrogation

With the status interrogation the receipt can be collected from every inverter after a broadcast/multicast-request.

REQUEST:

ENQ
05h

RESPONSE:

ACK
06h

ACK means : no outstanding error acknowledgement

or negative acknowledgement:

Error code ASCII	NAK
'3'	15h

A negative acknowledgement means : the last Broadcast/Multicast-Request supplied this error code.

4.2 Service -1: Reading a Parameter

REQUEST

Parameter address ASCII				ENQ
'2'	'0'	'0'	'0'	05h

RESPONSE:

STX	Parameter address ASCII				Parameter data ASCII				ETX	BCC
02h	'2'	'0'	'0'	'0'	'0'	'0'	'4'	'6'	03h	>1Fh

or negative acknowledgement:

Error code ASCII	EOT
'3'	04h

4.3 Service -1: Writing a Parameter

REQUEST:

STX	Parameter address ASCII				Parameter data ASCII				ETX	BCC
02h	'2'	'0'	'0'	'0'	'0'	'0'	'4'	'6'	03h	>1Fh

RESPONSE

ACK
06h

or negative acknowledgement:

Error code ASCII	NAK
'3'	15h

5 Telegrams of the extended DIN66019II Protocol

The DIN66019II(DIN66019 two)-protocol is an extension of the DIN66019-protocol and is used since the introduction of the unit generation COMBIVERT F5. Thus different services with access to parameters and parameter configuration as well as process data are possible. A detailed description of all services is found in the 'Service description KEB-Protocols'.

5.1 Service 0/1: Reading a Parameter Value (extended/standard set addressing)

REQUEST:

Service (+47h)	IID	Parameter address ASCII				Set ASCII		ENQ	BCC
'G' / 'H'	'1'	'2'	'0'	'0'	'0'	'0'	'1'	05h	>1Fh

RESPONSE:

STX	Service (+47h)	IID	Parameter data ASCII								ETX	BCC
02h	'G' / 'H'	'1'	'0'	'0'	'0'	'0'	'0'	'0'	'4'	'6'	03h	>1Fh

or negative Acknowledgement:

IID	Error code ASCII	EOT
'1'	'3'	04h

(This format is valid for all read jobs)

5.2 Service 0/1: Writing a Parameter Value (extended/standard set addressing)

REQUEST:

STX	Service (+47h)	IID	Parameter address ASCII				Parameter data ASCII								Set ASCII		ETX	BCC
02h	'G' / 'H'	'2'	'2'	'1'	'0'	'1'	'F'	'F'	'F'	'F'	'A'	'2'	'4'	'0'	'0'	'1'	03h	>1Fh

RESPONSE

IID	ACK
'2'	06h

or negative acknowledgement:

IID	Error code ASCII	NAK
'2'	'2'	15h

(This format is valid for all write jobs)

5.3 Service 2: Reading the Parameter Limits

REQUEST:

Service (+47h)	IID	Parameter address ASCII				ENQ	BCC
'I' (49h)	'3'	'2'	'0'	'0'	'0'	05h	>1Fh

RESPONSE:

STX	Service (+47h)	IID	Lower limit ASCII								Upper limit ASCII								ETX	BCC
02h	'I' (49h)	'3'	'F'	'2'	'3'	'4'	'5'	'6'	'7'	'8'	'0'	'0'	'0'	'0'	'7'	'F'	'F'	'F'	03h	>1Fh

5.4 Service 2: Writing the Parameter Limits

REQUEST:

STX	Service (+47h)	IID	Parameter address ASCII							Lower limit ASCII						Upper limit ASCII							ETX	BCC
02h	'I' (49h)	'4'	'2'	'1'	'0'	'1'	'1'	'2'	'3'	'4'	'5'	'6'	'7'	'8'	'2'	'3'	'4'	'5'	'6'	'7'	'8'	'9'	03h	>1Fh

RESPONSE:

IID	ACK
'4'	06h

5.5 Service 3: Reading the Default Value

REQUEST:

Service (+47h)	IID	Parameter address ASCII				ENQ	BCC
'J' (4Ah)	'5'	'2'	'0'	'0'	'0'	05h	>1Fh

RESPONSE:

STX	Service (+47h)	IID	Default value ASCII								ETX	BCC
02h	'J' (4Ah)	'5'	'F'	'2'	'3'	'4'	'5'	'6'	'7'	'8'	03h	>1Fh

5.6 Service 3: Writing the Default Value

REQUEST:

STX	Service (+47h)	IID	Parameter address ASCII				Default value ASCII								ETX	BCC
02h	'J' (4Ah)	'6'	'2'	'1'	'0'	'1'	'1'	'2'	'3'	'4'	'5'	'6'	'7'	'8'	03h	>1Fh

RESPONSE:

IID	ACK
'6'	06h

5.7 Service 4: Reading the Parameter Characteristics

REQUEST:

Service (+47h)	IID	Parameter address ASCII				ENQ	BCC
'K' (4Bh)	'7'	'2'	'0'	'0'	'0'	05h	>1Fh

RESPONSE:

STX	Service (+47h)	IID	Characteristics 1 ASCII								Characteristics 2 ASCII								ETX	BCC
02h	'K'	'7'	'F'	'2'	'3'	'4'	'5'	'6'	'7'	'8'	'0'	'0'	'0'	'0'	'7'	'F'	'F'	'F'	03h	>1Fh

5.8 Service 4: Writing the Parameter Characteristics

REQUEST:

STX	Service (+47h)	IID	Parameter address ASCII				Characteristics 1 ASCII								Characteristics 2 ASCII								ETX	BCC
02h	'K'	'8'	'2'	'1'	'0'	'1'	'1'	'2'	'3'	'4'	'5'	'6'	'7'	'8'	'2'	'3'	'4'	'5'	'6'	'7'	'8'	'9'	03h	>1Fh

RESPONSE:

IID	ACK
'8'	06h

5.9 Service 5: Reading the Display Standardization

REQUEST:

Service (+47h)	IID	Parameter address ASCII				ENQ	BCC
'L' (4Ch)	'9'	'2'	'0'	'0'	'0'	05h	>1Fh

RESPONSE:

STX	Service (+47h)	IID	Divisor ASCII				Multiplier ASCII				Offset ASCII				Flags ASCII				ETX	BCC
02h	'L'	'9'	'F'	'2'	'3'	'4'	'5'	'6'	'7'	'8'	'0'	'0'	'0'	'0'	'7'	'F'	'F'	'F'	03h	>1Fh

5.10 Service 5: Writing the Display Standardization

REQUEST:

STX	Service (+47h)	IID	Parameter address ASCII				Divisor ASCII				Multiplier ASCII				Offset ASCII				Flags ASCII				ETX	BCC
02h	'L' (4Ch)	'A'	'2'	'1'	'0'	'1'	'F'	'2'	'3'	'4'	'5'	'6'	'7'	'8'	'0'	'0'	'0'	'0'	'7'	'F'	'F'	'F'	03h	>1Fh

RESPONSE:

IID	ACK
'A'	06h

5.11 Service 6: Reading the Parameter Name

REQUEST:

Service (+47h)	IID	Parameter address ASCII				Language ASCII	ENQ	BCC
'M' (4Dh)	'B'	'2'	'0'	'0'	'0'	'1'	05h	>1Fh

RESPONSE:

STX	Service (+47h)	IID	Length ASCII		Text TXT						ETX	BCC
02h	'M' (4Dh)	'B'	'0'	'6'	'S'	't'	'a'	't'	'u'	's'	03h	>1Fh

5.12 Service 6: Writing the Parameter Name

REQUEST:

STX	Service (+47h)	IID	Parameter address ASCII				Language ASCII	Length ASCII		Text TXT						ETX	BCC
02h	'M' (4Dh)	'C'	'2'	'0'	'0'	'0'	'1'	'0'	'6'	'S'	't'	'a'	't'	'u'	's'	03h	>1Fh

RESPONSE:

IID	ACK
'C'	06h

5.13 Service 7: Reading the Plaintext Indices

REQUEST:

Service (+47h)	IID	Parameter address ASCII				ENQ	BCC
'N' (4Eh)	'D'	'2'	'0'	'0'	'0'	05h	>1Fh

RESPONSE:

STX	Service (+47h)	IID	Index Display ASCII				Number Display ASCII				Index Combivis ASCII				Number Combivis ASCII				ETX	BCC
02h	'N'	'D'	'0'	'0'	'1'	'7'	'0'	'0'	'0'	'9'	'0'	'0'	'2'	'4'	'0'	'0'	'3'	'6'	03h	>1Fh

5.14 Service 7: Writing the Plaintext Indices

REQUEST:

STX	Service (+47h)	IID	Parameter address ASCII				Index Display ASCII				Number Display ASCII				Index Combivis ASCII				Number Combi-vis ASCII				ETX	BCC
02h	'N'	'E'	'2'	'1'	'0'	'1'	'0'	'0'	'1'	'7'	'0'	'0'	'0'	'9'	'0'	'0'	'2'	'4'	'0'	'0'	'3'	'6'	03h	>1Fh

RESPONSE:

IID	ACK
'E'	06h

5.15 Service 8: Reading a Plaintext for the Display

REQUEST:

Service (+47h)	IID	Index ASCII				Subindex ASCII				Language ASCII	ENQ	BCC
'O' (4Fh)	'F'	'0'	'0'	'1'	'7'	'0	'0'	'0'	'3'	'0'	05h	>1Fh

RESPONSE:

STX	Service (+47h)	IID	Parameter value ASCII								Type ASCII		Text 5 Z TXT					ETX	BCC
02h	'O' (4Fh)	'F'	'0'	'0'	'0'	'0'	'0'	'0'	'2'	'3'	'0'	'0'	' '	' '	'O'	'F'	'F'	03h	>1Fh

5.16 Service 8: Writing a Plaintext for the Display

REQUEST:

STX	Service (+47h)	IID	Index ASCII				Subindex ASCII				Langua-ge ASCII	Type ASCII		Parameter value ASCII								Text 5Z TXT					ETX	BCC
02h	'O'	'1'	'0'	'0'	'1'	'7'	'0'	'0'	'0'	'3'	'0'	'0'	'1'	'0'	'0'	'0'	'0'	'0'	'0'	'2'	'3'						03h	

RESPONSE:

IID	ACK
'1'	06h

5.17 Service 9: Reading a Plaintext for COMBIVIS

REQUEST:

Service (+47h)	IID	Plaintext index ASCII				Definition index ASCII		Subindex ASCII		Language ASCII	ENQ	BCC
'P' (50h)	'2'	'0'	'0'	'3'	'4'	'0	'0'	'3'	'0'	'0'	05h	>1Fh

RESPONSE:

STX	Service (+47h)	IID	Parameter value ASCII								Plaintext type ASCII		Length ASCII		Text TXT			ETX	BCC
02h	'P' (50h)	'2'	'0'	'0'	'0'	'0'	'0'	'0'	'2'	'3'	'0'	'0'	'0	'3'	'O'	'F'	'F'	03h	>1Fh

5.18 Service 9: Writing a Plaintext for COMBIVIS

REQUEST:

STX	Service +47h	IID	Plaintext index ASCII				Def.-Index ASCII		Subindex ASCII		Lan-guage ASCII	Type ASCII		Parameter value ASCII								Length ASCII		Text TXT			ETX	BCC
02h	'P'	'3'	'0'	'0'	'1'	'7'	'0'	'0'	'0'	'3'	'0'	'0'	'1'	'0'	'0'	'0'	'0'	'0'	'0'	'2'	'3'	'0'	'3'				03h	>1Fh

RESPONSE:

IID	ACK
'3'	06h

5.19 Service 10: Reading the Group Characteristic

REQUEST:

Service (+47h)	IID	Group address ASCII				ENQ	BCC
'Q' (51h)	'4'	'2'	'1'	'0'	'0'	05h	>1Fh

RESPONSE:

STX	Service (+47h)	IID	Index ASCII		Code letters+ Shortcut 3 Z TXT			Characteristic ASCII				Highest Param.no ASCII		Number of Parameter ASCII		ETX	BCC
02h	'Q' (51h)	'4'	'0'	'1'	'r'	'u'	'r'	'0'	'0'	'1'	'B'	'1'	'9'	'0'	'D'	03h	>1Fh

5.20 Service 10: Writing the Group Characteristic

REQUEST:

STX	Ser-vice (+47h)	IID	Groupd address ASCII				Index ASCII		Code letter.+ Shortcut 3 Z TXT			Characteristic ASCII				Highest Param.no ASCII		Number of Param. ASCII		ETX	BCC
02h	'Q'	'5'	'2'	'1'	'0'	'0'	'0'	'1'	'r'	'u'	'r'	'0'	'0'	'1'	'B'	'1'	'9'	'0'	'D'	03h	>1Fh

RESPONSE:

IID	ACK
'5'	06h

5.21 Service 11: Reading the Group Name

REQUEST:

Service (+47h)	IID	Group address ASCII				Language ASCII	ENQ	BCC
'R' (52h)	'6'	'2'	'1'	'0'	'0'	'1'	05h	>1Fh

RESPONSE:

STX	Service (+47h)	IID	Length ASCII		Text TXT						ETX	BCC
02h	'R' (52h)	'6'	'0'	'6'	'I'	'n'	'f'	'o'	'-'	'P'	03h	>1Fh

5.22 Service 11: Writing the Group Name

REQUEST:

STX	Service (+47h)	IID	Group address ASCII				Language ASCII	Length ASCII		Text TXT						ETX	BCC
02h	'R' (52h)	'7'	'2'	'1'	'0'	'0'	'1'	'0'	'6'	'I'	'n'	'f'	'o'	'-'	'P'	03h	>1Fh

RESPONSE:

IID	ACK
'7'	06h

Service 12: Reading a Plaintext Definition for COMBIVIS

REQUEST:

Service (+47h)	IID	Plaintext index ASCII				Definition index ASCII		Language ASCII	ENQ	BCC
'S' (53h)	'8'	'0'	'0'	'3'	'4'	'0	'0'	'0'	05h	>1Fh

RESPONSE:

STX	Service (+47h)	IID	Bitmask ASCII								Number plaintext ASCII		Length ASCII		Description TXT			ETX	BCC
02h	'S' (53h)	'8'	'0'	'0'	'0'	'0'	'0'	'0'	'F'	'F'	'0'	'3'	'0	'3'	'O'	'F'	'F'	03h	>1Fh

5.23 Service 12: Writing a Plaintext Definition for COMBIVIS

REQUEST:

STX	Service	IID	Plaintext index ASCII				Def-Index ASCII		Langua-ge ASCII	Bitmask ASCII								Num-ber ASCII		Length ASCII		Text TXT			ETX	BCC
02h	'S'	'9'	'0'	'0'	'1'	'7'	'0'	'0'	'0'	'0'	'0'	'0'	'0'	'0'	'0'	'2'	'3'	'0'	'4'	'0'	'3'	'o'	'F'	'F'	03h	>1Fh

RESPONSE:

IID	ACK
'9'	06h

5.24 Service 16: Reading Process Data Type 1 (2*32bit)

REQUEST:

Service (+47h)	IID	ENQ	BCC
'W' (57h)	'A'	05h	>1Fh

RESPONSE:

STX	Service (+47h)	IID	1.PD-value IN ASCII								2.PD-value IN ASCII								ETX	BCC
02h	'W'	'A'	'1'	'2'	'3'	'4'	'5'	'6'	'7'	'8'	'0'	'0'	'0'	'0'	'7'	'F'	'F'	'F'	03h	>1Fh

5.25 Service 16: Writing Process Data Type 1 (2*32bit)

REQUEST:

STX	Service (+47h)	IID	1.PD-value OUT ASCII								2.PD-value OUT ASCII								ETX	BCC
02h	'W'	'B'	'1'	'2'	'3'	'4'	'5'	'6'	'7'	'8'	'2'	'3'	'4'	'5'	'6'	'7'	'8'	'9'	03h	>1Fh

RESPONSE:

IID	ACK
'B'	06h

5.26 Service 17: Reading Process Data Type 2 (4*16bit)

REQUEST:

Service (+47h)	IID	ENQ	BCC
'X' (58h)	'C'	05h	>1Fh

RESPONSE:

STX	Service (+47h)	IID	1.PD-value IN ASCII				2.PD-value IN ASCII				3.PD-value IN ASCII				4.PD-value IN ASCII				ETX	BCC
02h	'X'	'C'	'1'	'2'	'3'	'4'	'5'	'6'	'7'	'8'	'0'	'0'	'0'	'0'	'7'	'F'	'F'	'F'	03h	>1Fh

5.27 Service 17: Writing Process Data Type 2 (4*16bit)

REQUEST:

STX	Service (+47h)	IID	1.PD-value OUT ASCII				2.PD-value OUT ASCII				3.PD-value OUT ASCII				4.PD-value OUT ASCII				ETX	BCC
02h	'X'	'D'	'1'	'2'	'3'	'4'	'5'	'6'	'7'	'8'	'0'	'0'	'0'	'0'	'7'	'F'	'F'	'F'	03h	>1Fh

RESPONSE:

IID	ACK
'D'	06h

5.28 Service 18: Reading Process Data Type 3 (Scope)

REQUEST:

Service (+47h)	IID	ENQ	BCC
'Y' (59h)	'E'	05h	>1Fh

RESPONSE:

STX	Service (+47h)	IID	Timestamp ASCII	1.PD-value IN ASCII	2.PD-value IN ASCII	3.PD-value IN ASCII	4.PD-value IN ASCII	ETX	BCC
02h	'Y'	'E'						03h	>1Fh

5.29 Sevice 18: Writing Process Data Type 3 (Scope)

REQUEST:

STX	Service (+47h)	IID	Timestamp ASCII	1.PD-value OUT ASCII	2.PD-value OUT ASCII	3.PD-value OUT ASCII	4.PD-value OUT ASCII	ETX	BCC
02h	'Y'	'F'						03h	>1Fh

RESPONSE:

IID	ACK
'F'	06h

5.30 Service 32/33: Checking Parameter Value for Default Value

REQUEST:

Service (+47h)	IID	Parameter address ASCII				Set ASCII		ENQ	BCC
'g' (67h) / 'h' (68h)	'1'	'2'	'0'	'0'	'0'	'0'	'1'	05h	>1Fh

RESPONSE:

IID	ACK
'1'	06h

or negative acknowledgement if not Default value:

IID	Error code ASCII	EOT
'1'	'3'	04h

5.31 Service 32/33: Setting Parameter Value to Default Value

REQUEST:

STX	Service (+47h)	IID	Parameter address ASCII				Set ASCII		ETX	BCC
02h	'g' (67h) / 'h' (68h)	'2'	'2'	'1'	'0'	'1'	'0'	'1'	03h	>1Fh

RESPONSE

IID	ACK
'2'	06h

5.32 Service 48: Writing+Reading Process Data Type 1 (2*32bit)

REQUEST:

STX	Service (+47h)	IID	1.PD-value OUT ASCII								2.PD-value OUT ASCII								ETX	BCC
02h	'w'	'3'	'1'	'2'	'3'	'4'	'5'	'6'	'7'	'8'	'2'	'3'	'4'	'5'	'6'	'7'	'8'	'9'	03h	>1Fh

pos.RESPONSE:

STX	Service (+47h)	IID	1.PD-value IN ASCII								2.PD-value IN ASCII								F. code	ETX	BCC
02h	'w'	'3'	'1'	'2'	'3'	'4'	'5'	'6'	'7'	'8'	'0'	'0'	'0'	'0'	'7'	'F'	'F'	'F'	'0'	03h	>1Fh

5.33 Service 49: Writing+Reading Process Data Type 2 (4*16bit)

REQUEST:

STX	Service (+47h)	IID	1.PD-value OUT ASCII				2.PD-value OUT ASCII				3.PD-value OUT ASCII				4.PD-value OUT ASCII				ETX	BCC
02h	'x'	'4'	'1'	'2'	'3'	'4'	'5'	'6'	'7'	'8'	'2'	'3'	'4'	'5'	'6'	'7'	'8'	'9'	03h	>1Fh

pos.RESPONSE:

STX	Service (+47h)	IID	1.PD-value IN ASCII				2.PD-value IN ASCII				3.PD-value IN ASCII				4.PD-value IN ASCII				F. code	ETX	BCC
02h	'x'	'4'	'1'	'2'	'3'	'4'	'5'	'6'	'7'	'8'	'0'	'0'	'0'	'0'	'7'	'F'	'F'	'F'	'0'	03h	>1Fh

6 Examples

(In the examples all ASCII characters are represented without quotation marks.)

6.1 DIN66019 : Reading of a Parameter

Master:Request Read

EOT	0 1	2 0 0 1	ENQ

Addressing inverter 1, reading of parameter address 2001h.

Inverter:positive Response:

STX	2 0 0 1	0 0 0 5	ETX	BCC

Address 2001h has a value of 5, BCC=5(+20h)=25h

or negative Response:

2	EOT

Address or password invalid, clearing of the connection by EOT.

6.2 DIN66019 : Writing of a Parameter

Master:Request Write

EOT	0 1	STX	2 1 0 1	0 0 F 1	ETX	BCC

Addressing inverter 1, writing of parameter address 2101h with value 241 (F1h)
BCC = 76h

positive Response:

ACK

or negative Response:

3	NAK

Data invalid, no clearing of the connection

6.3 DIN66019II : Reading of a Parameter via Service 0

Master:Request Read

EOT	0	2	G	1	0	2	0	0	0	2	ENQ	BCC

Addressing inverter 2, reading of parameter address 0200h, set identification=2.
Invoke-ID=1, BCC=73h

Inverter:positive Response:

STX	G	1	0	0	0	0	0	0	4	6	ETX	BCC

Service 0, Invoke-ID 1, parameter value 70 (46h), BCC=77h

or negative Response:

1	D	EOT

Invoke-Id 1, error code 13 (address invalid), clearing of the connection by EOT.

6.4 DIN66019II : Reading of several Parameters of one Inverter

1.Master-Request Read

EOT	0	2	G	2	0	2	0	0	0	1	ENQ	BCC

Addressing inverter 2, service=0, Invoke-ID=2,
parameter address 0200h, set identification=1, BCC=73h

Inverter:positive Response:

STX	G	2	0	0	0	0	0	0	0	1	ETX	BCC

Service=0, Invoke-ID=2, parameter value =1, BCC=77h

2.Master-Request Read

H	3	0	2	0	1	0	1	ENQ	BCC

Reading of parameter address 0201h without renewed inverter addressing, service=1, Invoke-ID=3, BCC=7Ch

positive Response:

STX	H	3	0	0	0	0	0	0	F	F	ETX	BCC

Service=1, Invoke-ID 3, parameter value 255 (FFh), BCC=78h

6.5 DIN66019II : Writing of a Parameter via Service 1

Master:Request Write

EOT	0 F	STX	H	E	0 3 0 0	F F F F F F F E	0 1	ETX	BCC

Addressing inverter 15, writing of parameter address 0300h, value=-2, set indentification=1(indirect).
Invoke-ID=14, BCC=Fh(+20h)=2Fh

Inverter:positive Response:

E	ACK

Invoke-ID 14

orr negative Response:

E	3	NAK

Invoke-Id 14, error code 3 (data invalid), no clearing of the connection.