

Technischer Hinweis: 05699600.1824**Bezeichnung:** CAN Protokoll Liste ab FW Version HR_1_0_8**Motortype:** 1B30E / 1B50E

8

Erstellt von:	CR	Datum:	29.04.2024
Geprüft:	.	Datum:	.

Änderungsstand:

Anzahl	Änd.-Nr.	Datum	Name	Änderung
	00	29.04.24	CR	.WM 24-009
	.	.	.	.

Technical information:

The communication module of the inverter consists of two individual CAN-busses named CAN1 and CAN2.

CAN1 is used for data traffic between inverter and corresponding engine controller (ECU) of the power providing diesel engine.

CAN1 can be also used by customer to evaluate engine **and** inverter data.

CAN2 is used for data traffic between inverter and battery/energy monitoring systems.

In case of needing both data on the same CAN-bus, it is possible to connect the two busses physically together. Both busses run on the same Baudrate and protocol. This may be implicitly necessary in case of using comprehensive controllers like VICTRON-CERBO.

CAN1 – Inverter <> Engine

Nodes: Baudrate 250kbit/s

0x03	Hatz Inverter									
0x00	Hatz engine									
PGN decimal	Name	Identifier hex	SPN	Databyte(s) lsb-msb	Information	Value/bit	Offset	Cycle (ms)	Source	Remote
Inverter sent messages CAN1										
0000	TSC1	0C000003	695	Byte1/bit1	Override control mode	0=disabled 1=speed ctrl		10	0x03	00
			898	2-3	Speed setpoint	0,125 rpm	0			

Obnn = binary number, 0xnn = hex number, unused bytes set to 0xFF, refer to SAE-J1939-71 for message details

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PGN decimal	Name	Identifier hex	SPN	Databyte(s) lsb-msb	Information	Value/bit	Offset	Cycle (ms)	Source	Remote
Inverter sent messages CAN1										
57344	CM1	0CE00003	1656	Byte6/bit 7-8	Auto Start enable switch	0b00=stop 0b01=start		Relayed from CAN2	0x03	00
65468	Status	18FFBC03	-	1-2	Charger Output Voltage	0,05 V	0	250	0x03	broadcast
			-	3-4	Charger Output Current	0,05 A	-1600 A			
			-	5	Charger Status Inactive Const. Current mode Const. Voltage mode No AC-supply Fault	0 3 5 11 254				
			-							
65469	Limits	18FFBD03	-	1-2	Charger Voltage Limit	0,05 V	0	250	0x03	broadcast
			-	3-4	Charger Current Limit	0,05 A	-1600A			
			-	5-6	Power rating	0,05 kW	0			
65226	DM1 single	18FECA03	-	1	Lamp signals	See details in diagram below		1000	0x03	broadcast
			-	3-5	Error SPN					
			-	5	Error FMI/SPN					
			-	6	Occurance counter					
60928	NAME	18EEFF03			See details below			On request	0x03	global
65242	SW-ID	18FEDA03		2-8	BMS communication SW-ID	ASCII chars		On request	0x03	broadcast
65259	Comp-ID	18FEEB03		1-8	Inverter Firmware Information	hex values as string		On request	0x03	broadcast
65164	AAI	18FE8C03	441	1	Inverter temperature	1°C	-40°C	1000	0x03	broadcast

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PGN decimal	Name	Identifier hex	SPN	Databyte(s) lsb-msb	Information	Value/bit	Offset	Cycle (ms)	Source	Remote
Inverter accepted messages CAN1										
61444	EEC-1	0CF00400	190	4-5	Engine speed	0,125 rpm	0	10	0x00	broadcast
65269	AMB	18FEF500	108	1	Barometric pressure	5 mbar	0	1000	0x00	broadcast
			171	4-5	Ambient air temperature	0,03125 °C	-273 °C			
65364	ProStOut Proprietary	18FF5400	-	Byte7/bit3-4	Engine running	0b00=stop 0b01=run		100	0x00	broadcast
59904	PGN-Request	18EA03xx 18EAFx		1	PGN 0xEE00 = Name	PGN low byte		Once	any	0x03 or global
				2	PGN 0xFEDA = SW-ID	PGN high byte				
				3	PGN 0xFEED = Comp-ID	0x00				

CAN2 – Inverter <> Battery/Energy management

Baudrate

Nodes:

250kbit/s

0x54	Hatz Inverter
Any address	BMS/Energy manager

PGN decimal	Name	Identifier hex	SPN	Databyte(s) lsb-msb	Information	Value/bit	Offset	Cycle (ms)	Source	Remote
Inverter sent messages CAN2										
65468	Status only if BMS-mode is active	18FFBC54	-	1-2	Charger Output Voltage	0,05 V	0	250	0x54	broadcast
			-	3-4	Charger Output Current	0,05 A	-1600 A			
			-	5	Charger Status Inactive Const. Current mode Const. Voltage mode No AC-supply Fault	0 3 5 11 254				

0bnn = binary number, 0xnn = hex number, unused bytes set to 0xFF, refer to SAE-J1939-71 for message details

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PGN decimal	Name	Identifier hex	SPN	Databyte(s) lsb-msb	Information	Value/bit	Offset	Cycle (ms)	Source	Remote
Inverter sent messages CAN2										
65469	Limits only if BMS-mode is active	18FFBD54	-	1-2	Charger Voltage Limit	0,05 V	0	250	0x54	broadcast
			-	3-4	Charger Current Limit	0,05 A	-1600A			
			-	5-6	Power rating	0,05 kW	0			
65226	DM1 single only if BMS-mode is active	18FECA54	-	1	Lamp signals	See details in diagram below		1000	0x54	broadcast
			-	3-5	Error SPN					
			-	5	Error FMI/SPN					
			-	6	Occurance counter					
60928	NAME only if BMS-mode is active	18EEFF54			See details below			On request	0x54	global
Inverter accepted messages CAN2										
57344	CM1 only if BMS-mode is active	0CE054xx	1656	Byte6/bit 7-8	Auto Start enable switch	0b00=stop 0b01=start		100	any	54
65296	Command only if BMS-mode is active	18FF10xx	-	1	Charger Mode Constant current mode (CC)	0xFE		500	any	broadcast
			-	2-3	Current request	0,05 A	-1600A			
			-	4-5	Voltage request	0,05 V	0			

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Inverter accepted messages CAN2										
59904	PGN-Request only if BMS-mode is active	18EA54xx 18EAFFxx		1	PGN 0xEE00 = Name	PGN low byte		Once	any	0x54 or global
				2		PGN high byte				
				3		0x00				

Name and address claim (SAE-J1939-81): Information is sent on both CAN-busses once on start-up and can be retrieved by PGN-request.

	CAN1	CAN2		CAN1	CAN2
Identity Number	056991	056991	Vehicle system	0	0
Manufacturer Code (Hatz)	1351	1351	Vehicle system instance	0	0
ECU Instance	0	0	Industry group	5	5
Funct. Instance	0	1	Arbitrary Address capable	0 = no	0 = no
Function	88	88			

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Motortype: 1B30E / 1B50E

MIL = Malfunction indicator lamp (0x00 = off / 0x01 = on)
Stop = Stop lamp (0x00 = off / 0x01 = on) used for inverter faults listed below
Warn. = Warning lamp (0x00 = off / 0x01 = on) used for inverter warnings listed below
Prot. = Protection lamp (0x00 = off / 0x01 = on)
SPN = Error suspect parameter number SPN msb > SPN > SPN lsb
FMI = Error failure mode indication
CM = conversion method (0 = standard method mode 4)
OC = occurrence counter

List of Error Codes:			
Name	SPN	FMI	Info
E_SFO	4990	0	Microcontroller fault
E_OVERTEMP	4990	12	Inverter temperature too high
E_CURRENT1	4993	5	Phase 1 current error
E_CURRENT2	4993	6	Phase 2 current error
E_OUT_OVERVOLT	4992	3	Output overvoltage
E_INVALID_CONFIG	4990	13	Invalid configuration found
E_INVALID_REQUEST	4990	7	Requested values out of range
E_ERR_EEPROM	4990	19	EEPROM access failed
E_ERR_IDM_SPI	4990	31	Microcontroller intercommunication failed
I_TEMP	4990	15	Inverter temperature warning
I_POWER_DERATE	4990	11	Active Power derating (warning)

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